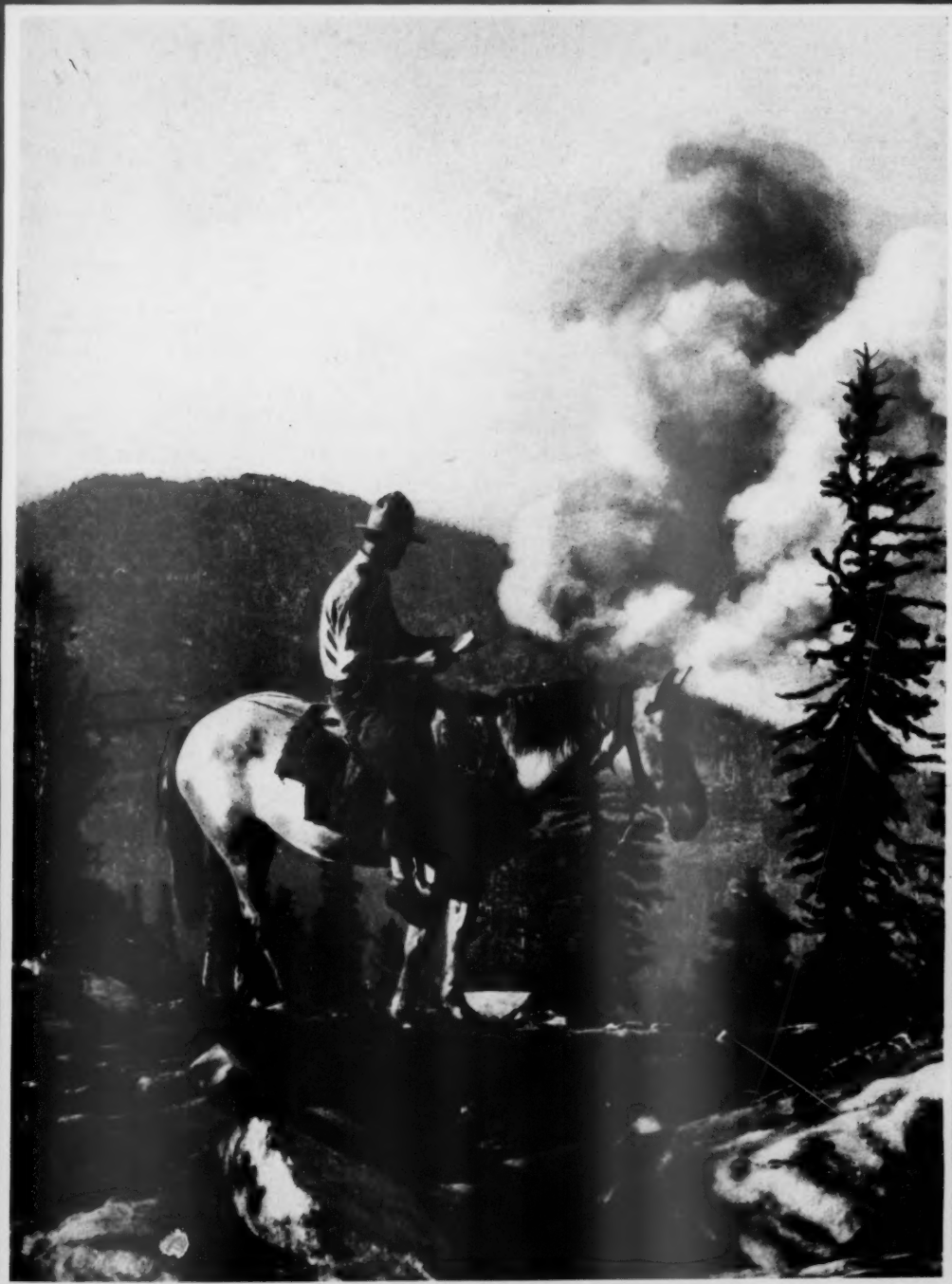


# American FORESTS



SEPTEMBER 1931

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MALIGNE LAKE, IN JASPER PARK

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K. D. Swan

FROM HIS LONE OUTPOST, THE LOOKOUT MAY HAVE THE OPPORTUNITY TO WATCH THE DEVELOPMENT OF A "BLOW-UP"--THOSE SPECTACULAR FOREST CONFLAGRATIONS WHICH SPREAD SO RAPIDLY AND WITH SUCH APPALLING POWER. NOW, WITH THE FIRE SEASON AT ITS HEIGHT IN THE GREAT FORESTED REGIONS OF THE WEST, WITH EVERY BRANCH OF THE FIELD SERVICE ARMED TO MEET AND DEFEAT THE "RED ENEMY", THESE MEN FACE REAL DANGER UNFLINCHINGLY AS THEY GUARD THE FAR-FLUNG FOREST LINE.





# LIGHTNING ON



John La Casse

"The Eyes of the Service."

# THE LOOKOUTS

By

H. T. GISBORNE

ONE of the most unique jobs in the United States is that of the forest-fire lookout. Perched on a high mountain in a glass-walled cabin or steel tower, or balancing precariously on a small platform built into the top of a decapitated tree, the observer must watch continually for new fires in the forest. He must not only discover the blazes quickly, but he is also expected to take an azimuth reading on the tell-tale smoke or otherwise determine its location, and then to report that location immediately to the central dispatcher at ranger headquarters. The technique of the work is as interesting as it is unique, but the experiences of the men on the mountains are steeped in dramatic adventure.

Usually alone, from six to ten thousand feet above sea level, cooking his own meals, obtaining his water from the hard drifted snows or back-packing it up from the nearest spring, and with his only means of communication that single, thin strand of grounded-line telephone circuit leading to the ranger station, such a man leads a life not to be found in any other occupation.

During the height of an extremely bad fire season the lookouts detect a fire almost as soon as the first wisp of smoke appears above the tree tops. They report its location accurately and promptly. Smokechasers are dispatched immediately. If the fire rages out of control the lookout may watch the development of a "blow-up"—a forest conflagration spreading so rapidly men have been unable to escape.

In the dense and valuable timber stands of northern Idaho and western Montana these blow-ups are spectacular and interesting things to watch if the observer is on the windward and safe side. If, however, he is situated as was a lookout on the Kaniksu Forest in late July, 1926, with a boiling

cauldron of smoke and fire tearing up toward him on a front of several miles, his voice is apt to quaver more than Leo's did when he rang frantically for the Coolin ranger station.

Leo's voice was an excellent imitation of a flag fluttering in a breeze as he told his tale.

"S-s-say, Bert," he stammered, "she's sure comin' up from the west side!"

"Yeah?"

"I th-th-think maybe I'd better be gettin' out of here!"

"Yeah?" Bert had heard this tale before from other lookouts.

"What do you want me to do?" Leo asked.

"How far is the front from you now?" Bert inquired.

"I can't see for sure because the smoke is somethin' awful, but it can't be more than a mile away."

"Can you hear her roar?" Bert asked.

"No, not yet."

"Then it must be more than a mile away or you'd hear it sure," Bert persisted.

"Well, I thought I'd better be gettin' off here and startin' down the trail," Leo suggested.

"Yeah? Well, wheel out. I was going to call you tonight and tell you to anyway. With the smoke so thick you can't help any by staying up there. But before you start down, pack up everything you can carry and cache it in that crack in the rocks over on the east side. Cover it all with your blankets and pour all your water over the outside blanket."

Leo not only cached all the materials he could move out of the lookout cabin, but he decided to backfire a safety strip around the house. And that cabin still stands, as one of the



The lookouts are usually located on high, bare, rocky mountain tops.

in the short period needed for him to sprint two hundred yards. While this particular lookout admits that he missed some of the details of this spectacle, his tale indicates that even while he watched the ridge top trail over which he was dashing he kept more than a weather eye on the towering column of smoke and flame belching up from the precipitous slope almost beneath him.

But such experiences are faded by an exceptionally active lightning storm enveloping a whole mountain in its electrified grip.

Two smokechasers, Jack and Bill, were halfway up the trail to Striped Peak lookout on the St. Joe National Forest the evening of the storm that nearly killed and cremated the lookout on Monumental Buttes. All of the lookouts had reported lightning storms coming in from the west, and the rangers had selected men from their trail-construction crews and scattered them as smokechasers over the million acres of upended forest. Fires were certain to result, and nearly all other work had to be disrupted in order to meet the danger.

The climbing was steep, and the two boys sat down for a rest. Jack bit into a plug of tobacco, and removed his hat while mopping his brow. As his fingers passed through his hair, Bill, who was watching him, let out a yell.

"Hey! You're shootin' sparks!"

"What du yu mean 'sparks'?" Jack asked.

"Why, there was sparks flyin' from your hair and your fingers just then," Bill stuttered.

"Oh, that's just the electricity in the air," Jack replied nonchalantly, and to prove his indifference he spat accurately at a nearby tree trunk. Then he, too, jumped to his feet for, as the tobacco juice sped through the darkness, both men saw its electrified trail.

More reliable observers have reported even more peculiar conditions on high mountain tops just preceding violent electrical storms. A certain scientist recounts vividly an experience on Great Northern Mountain, when his party found their rifles, geological picks, and other metallic implements emitting sparks visibly in full daylight. One of

boys characterized it, "a monument to Leo's intestinal fortitude."

While no lookout in the northern Rocky Mountain region has ever been trapped by fire at his station many have had weird experiences. The lookout who was on Desert Mountain, just south of Glacier Park, during the famous 1929 season still gets excited in recounting his experience of seeing two square miles on one side of his mountain swept clean by flames

the picks is still there, where the owner quickly dropped it as the party ran for a nearby glacier to lie close to the ice until the approaching thunderstorm had passed.

But the forest fire lookouts, who spend their full summers on these high mountain peaks, produce an annual crop of stories. Some, in spite of their general similarity, occasionally produce a new and interesting quirk. For whenever a storm passes over a lookout, delivering numerous strikes, there are almost certain to be some original incidents. Even though lightning does strike more than once in the same place, it seldom strikes twice in the same way.

Sometimes it happens that a man on his mountain top, seated at the very source of an electrical bombardment, may fail to realize and appreciate both the danger and the spectacle. For example, there was the storm around Red Top Mountain.

Down at headquarters the district ranger watched the lightning, saw the strikes come close to the building ten or twelve times, at intervals of five or ten minutes. The ranger knew that the young college student on the job up there was undoubtedly in the building, trying to be calm, but popping out of his chair with every bolt. Accompanying every strike near the mountain top the ranger could see what appeared to be streamers of fire shoot out from the guy wires that held the cabin to the bare rock. It was not until after the close of the fire season that the lookout's experience came to light. So many strikes close to his cabin, he said, had given him a "queer sensation" and that for a day or two afterward he had some difficulty in getting his hair to lie down smooth.

Occasionally, however, the lookout is the one who, from his gallery seat, watches the lightning play havoc with his ranger's home. As the Elkhorn ranger himself described it, a bolt of lightning apparently struck the telephone line first, as about 250 feet of wire had been burned to a crisp. The main line led of course directly to the ranger station and when the charge reached there it began to play unusual pranks. It burned both the line and ground wires inside the house, instead of following down the ground wire, as ordinary lightning should; it burned several holes in the wall paper; it set fire to a lace curtain; jerked two doors open; knocked down the ranger's wife; caused a steel bed to tilt enough to throw a fourteen-year-old girl, who was sick with pneumonia, out onto the floor; knocked over all the kitchen chairs; knocked everything off the kitchen stove including the lids and thereby filled the house with smoke; a heavy stick of wood that was used to hold open the screen door leading to the porch was later found on one of the shelves of the kitchen cupboard.



Perched six to ten thousand feet above sea level, the forest lookout keeps his lonely vigil.

Every lookout employed by the United States Forest Service and by most other timber-protective agencies is always instructed to throw the switch that grounds his telephone line while a lightning storm is in progress near his station, but sometimes

this precaution is not enough, or sometimes the lookout is too efficient in his urge to report a forest fire with the least possible delay. Thus accidents may happen. There was the lookout who "disremembered" for example, and the one who "lost all interest in the Forest Service temporarily." Neither of these cases was known outside their respective ranger districts until months later when the lightning storm reports were being tabulated to determine the occurrence of lightning storms, their characteristics, and how better forecasts of this great danger might be obtained.

On the report of a Bitterroot Forest lookout he had written that he could not answer the question as to when the storm disappeared from view as "I went to the phone to report a fire and the lightning must have come in over the wire because I disremember everything else until about an hour later. When I woke up the sky was clear and the storm was gone."

Another man, on the Challis National Forest in central Idaho, apparently celebrated one Fourth of July as follows: "I counted 116 flashes until 2.30 p.m. This was the last I remember until 3.35 p.m. Up until 2.30 the lightning was hitting pretty hard, a big fifty per cent of the flashes striking the ground. At 2.30 p.m. lightning was led into the cabin by the telephone wire. It riddled the building and rendered me unconscious until 3.35. I do not know any more about this storm as I lost interest in the Forest Service temporarily."

It would appear that a decidedly severe jolt was necessary to make this young man—probably a forest-school student getting experience during the summer—lose interest in his work. That he regained this interest, however, is shown by his continued reports during the remainder of the season. It is undoubtedly beyond the comprehension of some

people to imagine how men can return to such jobs year after year and profess to like it. True, only a few college students return to lookout positions for a second season, but that is not because they

are afraid of the work, nor because they do not like these lonesome but also exciting jobs on the high lookout points. Many college boys take these jobs as first stepping stones into forestry. While on such work they have a chance to learn some things about forest protection that cannot be taught them in the schools. Furthermore, such a job is a sort of try-out; if the man makes good as a lookout, if

he sticks it out in spite of lonesomeness, unaccustomed altitude, bears, lightning and his own cooking, he has a good chance of getting a better position in the organization next year. And nearly all of them do stick it out, and are better men for having made themselves do it.

In his little twelve-by-twelve-foot cabin with continuous glass windows on all four sides, the lookout must keep searching and searching for fires almost in spite of himself. Heavy steel wire cables anchor the cabin to the bare rock, but tight as these cables may be, the blast of a bolt of lightning forming just outside his windows and striking almost under his doorstep will rattle the windows and make the stove lids dance every time.

He is up in the stratum of tumultuous cumulus clouds; the mist is so thick he cannot see more than a hundred yards down the trail, and the friendly, warm sun is so far, far away that only a dim light penetrates as a shadowless gloom. The guy wires holding his cabin sing and twang in the driving wind; the rain and hail begin, and pelt his windows with a level blast so hard that at last he realizes why the builders used such thick glass. The crash of thunder a few miles away becomes the explosion of a hundred million volts of electricity

released just over his head and delivered right under his feet. He begins to talk aloud to himself and finds that he is trying to shout louder than the thunder. He starts to light a cigarette and the match trembles violently and goes out. He



Lightning as the lookout sees it—a sky mapped with streamers of fire.



The observer in the tower must not only watch constantly for fire, but he must also take azimuth readings on the tell-tale smoke, determine if he can the location of the fire and then report immediately to ranger headquarters so that control machinery may be promptly set in action.



blames it on the thunderous vibrations, and laughs most peculiarly as he fully appreciates for the first time what "thunderous" really means. If he closes his eyes to shut out the blinding glare of those white-hot bolts of lightning he seems to see the living room at home, the fireplace, the soft lights, the comfortable chairs, his mother and father. An even closer crash snaps his eyes open and jerks his muscles spasmodically, just as the dead frog legs jerk in the Galvani experiment.

Yet they stick, these college boys on the lookouts. They even come back for more. And there is many a young rancher or old-timer from down in the valley who counts on his summer job as a lookout to provide the cash that his hard ranching labors cannot furnish. Many of these local men return to their lookout stations year after year, until a lightning storm rattling their dishes becomes as pleasant music to their ears. They have learned by experience that the "cage" protection system, consisting of a network of heavy copper wire surrounding the cabin and leading to ground, can be depended upon to prevent direct hits to the lookout house. But even such old-timers will admit the thrill of it if they happen to be subjected to the experience of the lookout on Monumental Buttes on the St. Joe Forest in northern Idaho.

According to Fred's story, when he went to bed that night the western sky was piled high with ominous clouds and the flashes of lightning were clearly visible although they were so far away that no thunder could be heard. But he was an experienced lookout. He had already reported the impending danger of fires, and in those days, before they started taking azimuth readings on every nearby lightning strike, it was recognized that with such active storms approaching so late at night it would be better for him to get

his sleep and arise early. Then he could search every canyon, slope, and ridge for those tiny puffs of smoke which first betray the exact spots which the smokechasers must find.

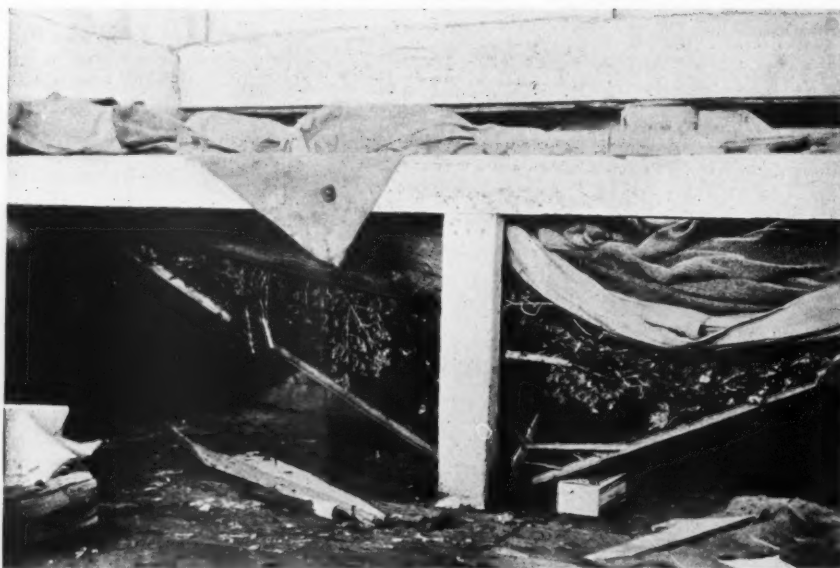
Fred's bed was made of boards, but well padded with springy alpine fir boughs.

On a hand-made stool beside his bed he left his clothes, with a box of matches on top so that he could quickly light his lamp and his fire, and have breakfast before sunrise. Into an empty cocoa can on the window sill at the head of the bed Fred dropped his pipe, after one last, long, sweet pull. Snuggled down under his blankets the coming storms worried him not at all; he did not expect to hear them. The soft sigh of the steady breeze, that would later become a gale, soon lulled him to sleep.

But Fred awakened long before dawn. He said that he felt "queer." He felt rain drops splashing on his face, and when he turned his head sharp glass scratched him. Cautiously pulling one hand out from under the blankets he brushed the glass away. But his fingers touched an unaccustomed board running horizontally alongside his head. That board should not be there. His mattress of boughs and his pillow of a folded cruising shirt always raised his head above the level of the side rail on the bed. He seemed to be in a box. In a box? A coffin is like a box!

His attempted leap did not carry him out of bed. He was indeed "bent" in the middle, but he struggled out nevertheless, amid a shower of broken glass. Reaching for the match box which he had left on the stool beside his bed Fred's instinctively groping fingers

found only space. He began to wonder whether or not he was in his lookout cabin. Where was the matchbox? Where was the stool. He finally found a match and lit it. He looked at his "coffin" but it was only his (Continuing on page 574)



C. H. Scribner

This shows the bed of the lookout on Monumental Buttes, just as he and the lightning left it. Above, the cabin on Monumental Buttes lookout after lightning tore through it. The lookout was knocked unconscious in his bed and very nearly cremated.



The young wood ibis waded and probed for snails.

Photograph by J. Dixon

## A POND AT DUSK

By BEN H. THOMPSON

REPORTS had come that a wood ibis had been seen in the vicinity of the Lamar River in northeastern Yellowstone. Such phantom birds from the dim, warm swamps of the Gulf States had come this far north only at long intervals. One was seen in southwestern Montana in 1911. The next one to come was seen in the Grand Canyon of the Yellowstone in 1925. Five years had elapsed, and a third one was reported. So rare a straggler excited our interested search.

At seven o'clock the afternoon had gone and evening had set in. A large white bird with fuzzy brown head, long, spindly legs, and long, ivory-colored bill—a young wood ibis—waded and probed for snails in the shallow water along the margin of a pond. It seemed oblivious of anyone observing it and waded, plunk, plunk, here and there, in a zigzag course around the pond. Perhaps Father Time could have enjoyed the burlesque. But two killdeer at one end of the pond did not. They uttered low quavering cries until the ibis stalked near, when they shrilled and whistled and ran among the buffalo tracks to drive the intruder away. The ibis seemed unaware of their presence.

With insatiable appetite it waded and probed until late dusk. Often its bill clamping on a snail shell sounded like old bones knocked together over the water. Once it seemed to feel too closely watched, and flew with long dangling, dripping legs, and black-tipped wings, to the other margin.

At eight-forty, dusk had silvered to a light charcoal hue, which lent an indefinite luster to the big white bird. It waded a few steps, hesitated, and stopped about four feet from shore. All at once its legs straightened up, its humped back tilted to a steep angle, and its lanky neck crooked down between its shoulders. It looked like a shrub in winter, drooping with icicles. With a little preliminary

preening it went to roost, hunched up, standing in the water.

From the far margin of the pond a muskrat emerged from its watery bankburrow, nosed a rippling V across the smooth surface of the water, and started nibbling the lush grass near the ibis. A second emerged and hugged the shadows of the nearest brink. Slowly they moved, unsuspecting, along opposite sides of the pond, getting farther from their channel in the rushes. The first was within four feet of the ibis before noticing it. There was a moment's hesitation, then it swam around the bird and resumed its nightly meal.

Suddenly the black form of an owl swooped, struck the glossy surface of the pond, and flew on. The muskrats dived. The killdeer dashed ahead of the owl like crazy, shimmering specks, screaming and calling. The ibis did not move.

In soft, obscure hills, the pond was like a solitary window past which birds and animals had moved, leaving it blank. Gradually the bats began to flit across its pale surface, the killdeer returned, insects rose to make little rings in the shiny patch, the nighthawks called, and the ibis slept. By nine o'clock no trace of the owl's attack was left. Even its hooting was gone from the night.

Ten minutes later the muskrats came out of their burrow once more and swam about the pond. One climbed on a rock and made a little sniffing noise. Just then the owl struck the water close to it, and it dived. But even the muskrats ceased to notice the repeated but harmless attacks, and kept foraging around. Was the owl seeking insects only?

The big silvery window was almost closed by a quarter past nine. But the ibis stirred a bit, picked its way very slowly a short distance, and resumed its winter-frozen shape—a mere phantom against the far margin.

Darkness ended the picture but not the story.





"River of Gold."

## RAINBOW RENDEZVOUS

By RAY GWYNN HOGAN

IT ALL came about in a haphazard, accidental sort of way. Kay and I had hied ourselves away to the Jemez, our favorite stream, bright and early on the first morning of the trout season. There was a fondness in our hearts for the Jemez for it was in its silvery waters that our piscatorial dreams had materialized and we had never gone home with luck smiling unfavorably upon our coachmen and hackles. An ideal trout stream it was—a rambling, snow-fed sheet of sparkling water tumbling noisily over great boulders or swirling quietly around deep pools. Often it crashed over rocky falls into murky depths in which fighting rainbows awaited to do battle with whatever crossed their paths.

But we were doomed to an unpleasant surprise. As we sped along the highway and turned off into the smaller road that led into the canyon we could not help noticing the smoothness of its usually rough and unkept condition. The deeper we got into the high-walled country the better the road became. Then, as we rounded the last bluff and came within view of the river, the reason for

the improvement stared us in the face. A large white sign with screaming red letters announced "Tourists Haven" and invited free camping.

Following the stream as far as we could see was an endless string of khaki-clothed men, women and children. There were tents, overloaded automobiles, and trailers. Clambering about the stream with all sizes and types of fishing rods, like so many ants, were fishermen.

"Holy smoke!" Kay breathed, "I never knew there were that many tourists and campers in the world!"

With hopeful hearts we drove on, deeper and deeper into the canyon, but the army of khaki never ended and when at last we came to the table we had built under two big pines and found thirty boys camped there, we felt that life

no longer held anything of interest.

Climbing from the little sedan, we walked disconsolately to the stream, now alive with milk cans, tomato labels and paper sacks.

"Hey!" suddenly cried a voice from across the water. "what's happened to all the trout? I've been fishing since daylight and ain't had a bite yet!"



I waded into the shallow depths skirting the falls and flung my line across the boiling current, waiting for the dark, racing streak heralding the first strike of the season.

With that the speaker, a puffing little man, smacked the water with his fuzzy line and number two hook from which dangled a piece of bacon rind and a strip of red flannel.

"They're probably about seventy-five miles from here now," Kay muttered in disgust as we turned away. We sought the little sedan and drove on up the canyon—simply wandering into the higher, deeper recesses, hoping that the horde of campers would disappear. But they didn't.

"Might as well turn around and beat it for home," Kay said sorrowfully.

The road was narrow. Consequently we were forced to drive on until we came to a wide place where we might, after a series of seesaws, get the car turned around and headed for home. A mile passed before we came to an old road leading off to the left.



The faint road finally drifted off to the left, into nothingness.



Ahead of us loomed the ramshackle old mill—deserted—watching our approach with a hundred hollow eyes.

Kay pulled the sedan into the faint trail and started to back when something caught my eye. There was a sign on a fir tree, scarcely visible through the maze of brush and undergrowth. I slipped from my seat and hastened to investigate.

A wavering arrow above the words "To Shank's Mill," pointed up toward the top of the hill, over which ran two faint trails. I turned to Kay. "Isn't that the old mill that was shut down about twelve years ago?"

But before Kay could reply I remembered. "That's the place where Al and Arch used to go for trout, a long, long time ago," I shouted. "Remember their telling us of that trip they took in an old buckboard drawn by mules? There's a trout stream run-

ning by the mill—let's see, what was the name of it?"

"Rio de Oro, wasn't it?" Kay offered.

"That's it! Come on, let's go see if there are any beauties in this 'river of gold!'"

"Probably dry by now," Kay pointed out.

"But," I protested, "it's eighty miles to home and—well, it might not be dry."

Kay headed the little car up the trail.

Rio de Oro! Forgotten river of the past! A stream where trout once abounded, where my older brothers had ventured and returned with glowing tales of fighting rainbows and cutthroats. Over the faint, dual paths we bounced and jostled, sliding into shallow ravines, laboring up steep hills. Finally we slipped into a clearing.

Ahead of us was the mill, a great ramshackle structure with a hundred hollow eyes watching our approach. Beneath it rolled a turbulent stream looking more like a river of silver than of gold.

"Me for the big pool right under the mill," Kay shouted, reaching for his tackle before the car had stopped rolling.

"Take it, buddy," I cried, "I'm headed straight for the falls up above."

Kay was already at it when I finally got my five-ounce bamboo together and tapered line strung. His first cast brought a shimmering rainbow from the pool and I hurried on to my chosen spot.

Fanned by a fine spray of cool water, I waded into the shallow depths skirting the falls, flung my unsoaked leader and line across the boiling current and waited anxiously for the dark, racing streak that would herald the first strike of the season. But, no! My leader now wet and pliable, I made another attempt. The red and black of the coachman flicked across the water, paused for a moment, then drew slowly across the silvery surface. A shadow came from nowhere, with the speed of lightning, and my line hummed as he plunged for safety amid the rocks that lined the sides and bottom—the first skirmish of the season was on.

It wasn't long, but lively, indeed, and when I finally slipped fourteen inches of speckled beauty into my creel my heart was pounding with excitement.

What a wonderful fishing stream! At intervals of ten feet deep pools waited to test my skill. From the banks above the falls I stood and whipped the stream, bringing to hand another sizable cutthroat and a smaller rainbow that I returned. Slowly

I worked upstream, testing the rapids and the dark holes that shadowed under moss-covered rocks.

Another hour of steady fishing and the weight of my creel increased pleasingly. Ahead, a hundred yards or so,



At the foot of the waterfall lurked the "granddaddy" of 'em all!

I caught sight of another pool, larger and apparently deeper than the ones that I had already tried, and I worked toward it. Pools, to the angler, are like peaks to the mountain-climbing enthusiast who visions the next one as better and his ultimate goal before beginning the return. I decided that I would fish until I reached this pool.

I took two rainbows from the "river of gold" before reaching the pool, but as I stood on its brink and searched its rippling surface and blue depths for signs of rainbow fury I was disappointed to see nothing. With doubtful eye I watched my flies flip out across the water, strike a half submerged rock, then slide into the stream. They held motionless for a second before the current caught and whirled them into the full strength of the river. When I pressed lightly on the reel, meaning to check their course and draw them to my side of the pool, a dark streak of dynamic fury, lying unseen beneath an overhanging, immersed rock shot into action. The thud telegraphed the news that it was no coddling—and I set the hook for certain.

He took my coachman for a rapid visit to the opposite end of the pool as the hook bit in for the first time. Back he came in a series of loops and barrel rolls that made me dizzy. Out of the water he leaped, glistening drops falling from his pink and amber body, then down—for China.

What a rainbow! And who could wish for a better setting to fight it out? Zealously I guarded the silk line, alert that no slack might enter and terminate the battle in tragedy, for to lose him would surely be such. Out of the water he came again in another shimmering bound. But he was tiring, his leaps falling short and his plunges less determined. Then he sulked and eventually took his place in my moss-lined creel with others of his acquaintance. He measured eighteen and a quarter inches—every fraction of it dynamite. With radiant rainbows lending that comforting feeling of heaviness to my basket, I turned and wandered back toward the mill, casting in the better places and netting three more nice ones. At the falls I paused to look down into the boiling depths where a dozen ten or twelve-inch trout were swimming amiably about, snapping at tempting objects, while a "granddaddy" hovered closeby. I slipped to my knees in the soft sand that bordered the top of the falls and dropped my flies over, letting them follow the natural action of the water. For a minute they were lost in the boiling foam and spray, fifteen feet below, but presently they bounded into view on the crest of a young breaker and were scurrying toward the trout.

"Get away!" I found myself saying aloud as two of the smaller fish swam towards the hackles. The big one never moved, just remained motionless, his broad tail fanning slowly, fins quivering as he watched. My heart sank as I saw the smaller fish backing away, preparing to strike.

Then like a flash the big one shot through the murky water, scattering his brethren like paper before a wind—and was hooked. So excited was I that I sprang to my feet, lifting the rainbow clear of the water and bending my rod double.

I still wonder what held that frail bit of bamboo together during that moment for the trout was only half an inch less than the other big one that graced my creel, and they pull the spring down on any scale when they reach that length.

It was past noon as I wound along the faint trail that followed the river, marveling at the beauty of the country. All around me were nature's children, her own handicraft, unspoiled, untouched by man. Possibly no man had trod this very path for many, many years. Birdfolk, the lesser members of the animal kingdom, all chattered and scolded from their green havens. I came upon a deer trail with tracks not so very old. At a shallow rivulet that came from somewhere back in the mountains I found the tracks of a grown bear and a cat where they had paused to drink. A wonderful country, this Rio de Oro canyon, untouched and unmarred. But for how long? How many years before a highway as smooth as glass and twice as broad as the river itself would cut its way through? How long before a multitude of campers would erect their pyramids beside the flowing stream and drive the finned, feathered and furred folk from their homes? All too soon!

I caught the odor of frying rainbows as I passed the forlorn mill. Kay, grinning from ear to ear, straightened up from his job at the small fire and waved. It was evident that I was not alone in supporting a heavy creel.

"How much will you bet?" he said. "Make it light on yourself."

"Six flies, any kind," I wagered.

He spilled his creel out on the grass and lay three nice ones side by side, not to mention a dozen twelve and fourteen-inch ones that didn't count in the bet. I calculated the size of his largest one—possibly as big, but not bigger than mine.

"Still bet?" Kay chided.

"Absolutely, I need those flies," I replied, dumping my basket and pulling the tails on my two big ones. "Pay off!" I grinned as I pointed out the good half-inch difference.

We tarried until the shadows began to lengthen and the high peaks turned from gray to purple before we stowed our packs into the sedan. Kay started up his motor, but my eyes lingered on the forsaken mill, the lavender and golden walls that towered around it. The sun's glow, reflecting from the high walls, had flooded the stream with a bright orange.

"Look!" I cried, "now you can see why it's called the 'River of Gold.'"

"It might be a river of mud, for all I know," Kay muttered. "It's a rainbow rendezvous to me!"



TREES

I have seen magnolias  
And cedars on a hill,  
And cherry trees, bloom-silvered,  
Prayerfully still.

And hawthornes pink as lassies  
In an English lane ---  
And these were much of rapture,  
And more --- and more of pain.

But none were near so lovely  
As elms in Lounsdale Square,  
Leaf mantillas star-pinned  
To their hair.

—Ethel Romig Fuller





# The Black Bog of Pentwater

Where the Forces of Nature Wage a Silent, Relentless, Unceasing War

By JAMES HOWARD SEDGWICK

"IF YER wise, y'll leave that black bog strictly alone!" For an exclamation point the hermit of Grouse Hollow spat noisily. "They' hain't nothin' good in thar fer man er beast. It's onhealthy. Folks hereabouts is skeered to go in."

"But what are they afraid of?" I had pressed this question upon others who had warned me to stay out of the black bog of Pentwater, about six miles northeast of the Village of Pentwater, in Oceana County, Michigan, just east of Lake Michigan and south of Bass Lake. Receiving no answer, I tried to pin the old hermit down to facts. "Are there bears in there?"

"No sir, I ain't seen a bar in this part of Michigan fer a quarter of a century."

"Are there rattlesnakes?"

"Don't know fer sure."

"Then what in Heaven's name are folks afraid of?"

"Wal, friend, I don't say as folks is skeered of anything—they're just skeered." And much to my profound disgust the old hermit shrugged his shoulders and waved both hands.

"Have you ever been in?" I persisted.

"'Bout thirty years ago. Thar warn't nothin' in thar anybody'd want—so I jest stayed out from then on."

But there were things in that black bog that I wanted. There was mystery and I wanted the solution of it; there was nature unchecked and I wanted to see it; there was adventure and I wanted to taste it. Once let a man get the love of wild places in his blood and black bogs, no matter how sinister their reputations, lure him on. Let him have a brand-new camera to try out on nature subjects, and tradition, rattlesnakes, bears, or even fiery dragons cannot keep him out of this or any other black bog. So we went in alone—my camera and I.

Now the terms marsh, swamp and bog are commonly misused. Let me first tell you, if I can, what a bog is. Whereas a marsh is a tract of land which is overflowed in times of high water, and a swamp is a piece of poorly drained land that is covered with shallow, open water all or most of the time, a bog is a place where the soil is always wet and spongy and composed of decaying vegetation. Bogs often support a rank tree growth.

Having made innumerable inland lakes on the face of the earth, nature is forever trying to fill them up so that they will become fertile plains for her to cover with trees. First a lake, then a swamp, then a bog, and at last a forest are steps in the transition of water to land. The black bog which I went into that day was once, no doubt, a lake eight miles long and seven miles wide. That was thousands of years

ago. Countless generations of aquatic plants have flourished and died, leaving their dead bodies as soil for their successors to build upon. Today the one-time lake is nearly filled up. But way out in the middle where the water was deepest, the filling-in process has not progressed as far as it has nearer shore, so there are unknown pools and treacherous holes. In some places the ground is actually floating upon the surface of a vast underground lake of unfathomed depth.

Someone has strung barbed wires along the edge of the black bog of Pentwater. Since there is no livestock in that wild country for miles around, this barrier can mean but one thing: "Danger! Human Beings Keep Out!" But such a warning is hardly needed, for the foolhardy will go in regardless, and one glance into the gloom beyond the fence is enough to send the shivers up and down the spines of the timid. The very shadow of the bog is terrifying. I had to admit that as I approached it.

I followed the sandy road that skirts the bog's western margin until I came to what appeared to be a likely going-in place. Ferns and wild flowers grew in tangled profusion for the space of fifteen feet bordering the road. Then abruptly the bog began.

A few steps, a brief struggle with the barbed wire and I was in. Breathlessly, cautiously, almost timidly, I put one foot ahead of another. A short distance inside I stopped and surveyed my surroundings. I was in a tomb—a tomb where the bodies of untold billions of plants lay mouldering beneath my feet. Who knows what rare and beautiful forms of mosses, ferns and trees have perished there, unknown, in centuries past?

Thick silence everywhere. A sort of dim, greenish glow that served for daylight. All sorts of monsters might have



Entering the mysterious bog—one look into the spooky depths of the place was enough to give one the creeps.

been lurking in the gloom beneath the trees. No wonder people thereabouts were "skeered." The black bog did give one the creeps!

I went on directly toward the heart of that dreary place. Outside, I had noticed that there was quite a wind, enough to whip the tree-tops about. But where was the wind in here? Over my head the feathery hemlock boughs hung motionless. Queer sort of place, this.

Trees, trees, trees. Cedars and hemlocks fought for dom-

to soil which would become a battle-ground for future generations. It struck me then that I was witness to a war, a silent, motionless war, but one that never ceased and from which there could be no armistice. Every living tree there in that bog was fighting for its life. Each fought for air, for light; for room to grow, for immunity from parasites, and ruthlessly the living trampled on the bodies of the dead.

Again I renewed my journey. What an ideal place for murders and such, I thought. Probably few humans have ever been here in this thoroughly unhuman place. And then I stopped, aghast at what I saw. It was only a leather strap six feet in length hanging from a hemlock limb.

If I had come upon such a thing in the forest outside the bog, I would have thought nothing of it. Some half-breed Indian perhaps, out after blueberries, with a wagon-full of squaws and children to help him, had forgotten his hitching strap. But here! One touch and it crumbled. The dangling buckle fell to earth. It had been hanging there for years. And only the silent, exasperating trees knew how it came to be. No doubt those trees grinned over my discomfiture at such a little thing. But I was in the bog, alone—!

The strap episode ended, I wheeled about and, with scarcely time to catch my breath I stumbled onto another scare. The rotten log I stepped upon split open and there was a one-inch galvanized iron water pipe extending longitudinally through that log, from end to end!

Moonshiners! A secret pipe line through which liquor flowed in a steady stream. Was I in danger of being shot because I knew this thing? Was there a spy somewhere at that moment drawing a bead on me with a rifle? How soon would I feel the cold-hot sting of lead in my side? Or would I be hung with a leather strap and left alone in the black bog?

These thoughts went whirling through my brain as I gazed at what appeared to be a galvanized pipe. But as the mist of astonishment cleared away, I began to doubt the veracity of things in this spooky bog. I began to doubt that what I saw was actually there. And it wasn't.

I stooped and touched the thing that seemed to be a water pipe, and straightway received another surprise, for it was not of cold iron, but of wood. I could see now that it was a root. Some gray birch tree near-by had sent out this tentacle in search of food supplies. The root, now about the size of an inch pipe, had put on the lustrous gray bark of its parent tree. Moreover, it was a remarkably straight root and so it had come to have a striking resemblance to a galvanized pipe such as plumbers install in our homes.

Of course this strange phenomenon must be photographed, for unless I had a picture of it, who would believe that I had not been having hallucinations there in that eerie, silent bog? Perhaps I wanted to convince myself. So with trembling hands I unlimbered my photographic apparatus.

Just as I was about to snap the shutter a fat, slimy creature with horns like a great snail but without a sign of a shell upon its back, came crawling out of a cranny in the wet log and began to cross the root. Once I touched it so that it would stay and be in my picture, and immediately its own



The decaying log with the gray birch root running longitudinally through it. The large, slimy slug which crawled out of the wet log can be plainly seen on the root.

inance and, though not large of bole, struggled upward to tremendous heights. Here and there individuals stood so close together that their trunks actually touched. They would have clashed together in a wind but no wind was there. Lustrous-barked gray birches meekly owned to second place, but grew tall wherever there was room. All stood still and silent, just growing, growing.

If trees converse among themselves their language is inaudible to human ears. The dead stillness of the place began to unravel my nerves. Not a bird voice—not even so much as a cricket chirp broke the awful quiet. I heard myself breathe. The ticking of my watch in my pocket was by far the loudest sound that came to my straining ears. It was as if all living things in there were waiting with bated breath for me to travel onward to some dreadful trap they had set for me.

Strange odors arose—odors of muck and of mouldy vegetation, of dampness, of disease-breeding places. As I stood there I suddenly became aware that I was sinking; water was gurgling up about me. I pulled my feet out of the wet, cold soil and scrambled onto a decaying log to keep from going down. Even the noise of my scrambling was muffled by the soggianness of everything.

And then a sound! It was a sharp, keen-edged cry that stabbed my eardrums like needles. The wilderness was full of it for an instant, then silence flowed in again. Only a water bird, perhaps, far out in the bog calling to its mate, but it startled me out of all proportion to its intensity. It frayed my nerves some more.

I decided to go on toward the heart of the great bog. The ground became more and more unstable as I advanced. I found a place where several trees had fallen. Their dead bodies were literally being devoured by armies of mushrooms. The living trees, too, were being attacked by these hungry little enemies. Soon all would die and be reduced

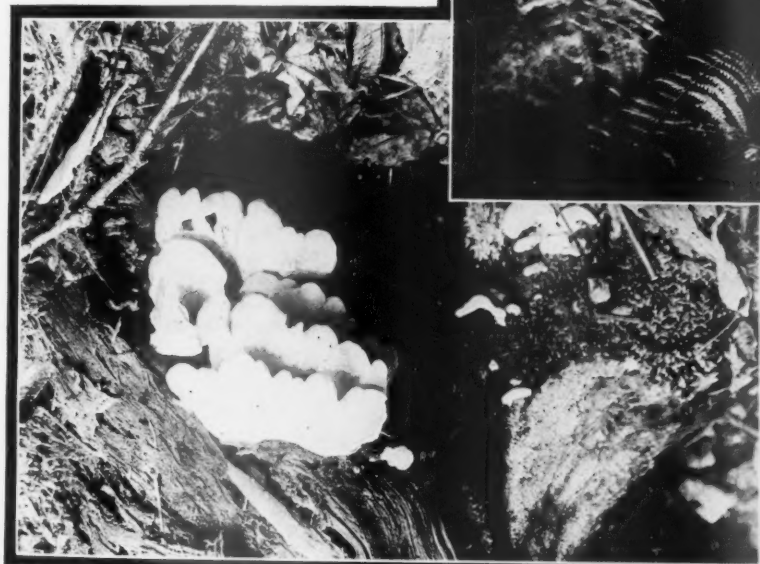


repulsive body as well as my fingers were drenched in a milky slime.

I went on. Now I heard weird calls as of strange birds. Tall trees gave way to lesser ones, and these in turn to a tangle and jungle of bushes, rank herbs and ferns—enormous ferns, waist high, shoulder high, head high. I was coming to the dreaded center of the black bog where the ground was very treacherous, where one step, unwisely taken, might send me slithering into the dark waters of some bottomless hole.

I stopped once more to take stock of things about me. Here indeed was a naturalist's paradise. Sphagnum moss grew in feathery hummocks between which the black water stood. On and about these little mounds of moss were interesting forms of life. On this one grew a saddle flower, that strange member of the plant kingdom which keeps its jug-like leaves half full of liquid so that insects will be drowned therein to make of their decaying bodies soup for the hungry plant. Over there was a sundew, another insect-eating plant, which entices the little victims with a sticky sweet, then holds them fast with its movable tentacles.

To my right was a single specimen of the rare chain fern. To my left grew a clump of dazzling cardinal flowers. Several kinds of orchids were growing beneath the thickets. Everywhere now was the hum of busy insects. Beautiful butterflies were there, flitting from gorgeous blossoms to more gorgeous ones.



Here in the darkness of the bog, dead trees were being literally devoured by fungi of translucent whiteness and surpassing beauty.

Certainly a place to study nature. Another summer will see me back again in the heart of the black bog with notebook, camera and collecting outfit. But next time I'll carry a compass.

The hermit of Grouse Hollow had said: "That thar bog hain't like ordinary woods. In thar a man's so shut in he can't see his landmarks. Ordinary woods gives a feller a chance. The black bog don't."

I was bending over my camera trying to photograph a colony of mushrooms which were growing on the base of a dead tree. These were unusually beautiful mushrooms; in their fairylike whiteness they seemed to catch and intensify the light and reflect it in shimmering rays to brighten this somber corner. Suddenly I heard staccato hoof-beats as of horses galloping along a paved road. The beats of hoofs on pavement when the wind is right will carry for miles, while the noise of other traffic will be entirely lost. I started. There was no paved road in that direction. The sound had come from in front of me when, according to my reckoning, it should have come from behind. Those hoof-beats had seemed to come from the very middle of the black bog. In my state of mind I was almost ready to believe that a phantom coach-and-four was bowling along a phantom highway out there where no man dared tread. On second thought it dawned on me that I was completely turned around.

Walled in by a dense jungle of vegetation, as I was then,



The eerie beauty of the dark, mysterious depths of the bog was enhanced by a jungle of ferns—waist-high, wherever there was a little light.

a man can only navigate by guesswork. A mouse in a forty-acre field of wheat would be in a similar position, only the mouse could wander around recklessly, without fear of slipping into some watery abyss.

If it had been a bright day, I could have gotten out much easier, for with a watch and a visible sun, one can determine, roughly, the points of the

compass. In that case I should have simply kept in a westerly direction and would have come, eventually, to the barbed wire at the western edge of the bog—provided the treacherous ground was navigated all right. But the sky had become heavily overcast and I could not locate the sun.

This was serious. I looked for moss on the north side of trees. But in that accursed place there was no rhyme or reason to the moss. It grew on (Continuing on page 575)



# RADIO AND FOREST FIRES

By

CHARLES E. RANDALL

SOME day fighting forest fires will be a relatively simple matter. The forest officer, sitting at his desk, will straighten up as the loud speaker announces a smoke sighted in Buzzard Canyon. He will press the appropriate buttons and twirl the dials that will dispatch a flying squad to the blaze. And he will watch the speedy smothering of the fire on his television screen. That happy day may be in prospect, but it has not yet arrived. Steady progress is apparent, however, in the adaptation of modern scientific and mechanical aids to fire control. One of the recent lines of investigation is in the use of radio. And already radio is promising to have an important part in the future communication system on the National Forests.

Since 1927 the United States Forest Service has been at work on the problem of adapting radio to forest-fire protection. Experiments last year reached the point of actual trial under field conditions.

In attacking this problem the Forest Service had to start almost from scratch. Although the use of radio in combating forest fires has not been unknown in recent years, Canadian foresters and one or two states having done some pioneer work with it, the Forest Service found many perplexing questions unanswered.

How much radio energy would green timber absorb? Could the "shadow" effects of mountains in the rough country found in most National Forests be overcome? These and many other



The red enemy creeps through the hills.

questions had to be solved by experiment. If the radio apparatus was to be used in the remote, back-country places where it would be of greatest value, it would have to be rugged, since it must often be transported by pack animals or on the backs of men. The power available for portable equipment would be limited because the weight and bulk must not be too great to be packed over steep, narrow trails and through dense woods. The problem of inefficient antenna systems due to space limitations in heavy timber would have to be met. Then, too, inexperience, so far as radio is concerned, of the temporary men employed in fire crews and of the short-term fire guards on the National Forests would have to be considered. Few of them would have knowledge of radio technique or of code. Unless the apparatus was simple of operation it could be used only by

a few technically qualified forest officers, or else a large staff of trained radio operators would have to be maintained.

What was needed was specially adapted equipment that would combine high efficiency with simplicity, lightness and durability. Hundreds of trials were



On the fire line—amid the heat and grime and smoke.

made, radio experts were consulted, but the Forest Service was unable to find existing apparatus that would meet all of the rigorous and exacting tests of service on the National Forests. The service therefore set about to design a set of its own.

To D. L. Beatty, forest inspector in the Northern National Forest Region, was assigned the "radio project." He has handled the work from the beginning. Out of Mr. Beatty's experiments came the development of specially designed apparatus which shows excellent promise. It is light enough for quick transportation. Apparently it is tough. It has been jogged over mountain passes on the back of a mule, bounced over rutty mountain roads in a truck without smashing a tube or displacing a button. The set has been checked by the Naval Research Laboratory and the Bureau of Standards. A number of engineers and manufacturers have praised the efficiency and simplicity of the apparatus.

The new Forest Service set is a combination transmitter and receiver. As designed it weighs, with case, phones, key, batteries and antenna wire, about seventy-nine pounds. The battery equipment will give a season's use for the receiver and about twenty-five hours' continuous service for the transmitter.

Last summer, under Mr. Beatty's direction, the new apparatus was given preliminary trial in field work on the Columbia National Forest, in Washington. Results were most encouraging. In one case—when the Sepsican fire broke out in the forest—sole reliance was placed on the radio for communication, and radio helped save the day. Following is an account from the record of a month's work with radio on the Columbia National Forest, as written by one of the experimenters:

"We have a central radiophone station and seven portables in operation, at distances varying from fourteen to forty-five miles airline. One lookout has radio as his sole means of communication. The other portables are being used by road and trail crews and are moved from point to point as the crews move. The portables communicate with each other and with the central station by continental code, at prearranged intervals. The central station uses voice.

"Within my experience the portables have put out a good, steady signal, consistently reliable. As an example of the steadiness, I copied down signals from one of the portables all evening and the next day without touching the receiver other than to turn it on.

"The power output of the portables is small, but seems to be ample for ordinary conditions, I have copied a port-

able with ease at a distance of 350 miles airline. Hence it would appear that the safety factor for transmission over a distance of twenty-five miles which has been the Forest Service objective, is large.

"The portables have been moved about considerably both by truck and pack and have stood up under it satisfactorily. No special care is taken in preparing the equipment for shipment. The tubes are not even removed from their sockets.

"The percentage of failure will probably be relatively small. The radio will provide quick communication under circumstances where a telephone would be practically impossible."

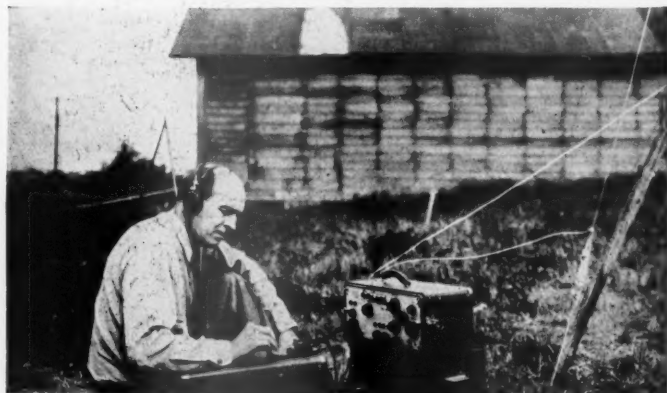
Several important questions are yet to be answered. For instance, what is the traffic saturation point for a central station? It appeared likely, in the field tests made so far, that two simultaneous fires in addition to the regular schedules with the portables would be too much for one central station to handle.

Another possibility that is receiving attention is that of radio communication between airplanes used in fire patrol and forest officers on the ground. Aircraft are becoming increasingly important for quick transportation of men and supplies and for reconnaissance of going fires and areas of high fire hazard. If immediate communication between aerial observers and ground forces can be established the value of aircraft in fire control will be greatly enhanced.

For some time to come it is likely that the use of radio on the National Forests will have to continue in the experimental stage. Even when all technical difficulties have been overcome it will take some time to provide and install adequate equipment, to train personnel for technical supervision and to work out administrative problems involved in large-scale radio communication. Meanwhile Old Man Fire shows no signs of being accommodating enough to postpone his depredations. The Forest Service for some time to come must continue to place its main reliance for communication on its 37,000 miles of telephone line already strung up and the line yet to be built to complete the National Forest telephone system.



Sending a radio message from the depths of the woods through the special Forest Service field apparatus designed for that purpose.



The receiver at work, quite possibly taking important directions for relief in fire control work. The author says when the Sepsican fire broke out on the forest last summer, sole reliance was placed on the radio for communication and radio helped save the day.





John D. Cress, Seattle

A giant spruce falls in Oregon—this is typical of the contribution made by the great trees of the West in the World War.  
Production was speeded up, for such timbers were invaluable in airplane construction.

# The Northwest Lumber Crisis

Large Timber Investments and Over Production are Main Problems of the Industry in Oregon and Washington

By W. B. GREELEY

**T**HE main problem of the lumber industry in western Oregon and Washington arises from excessive investments in standing timber and operating facilities, in relation to the possible rate of conversion and use.

The immense body of timber in that area became subject to the speculation, capitalization, taxation, and carrying charges incident to private ownership. The conversion of trees into dollars forthwith became the main motive power in the industry. It led to the building of operating facilities for logging and manufacture in excess of the marketable volume of lumber except during occasional boom periods. It was accentuated by the war-time drive for production.

Hence, not simply during the current depression, but for the past twenty years the pressure to liquidate investments in timber, logging operations and sawmills has dominated the west coast lumber industry and kept it in an almost chronic state of overproduction.

The best data now available show that in 1930 the standing timber in western Oregon and Washington totaled 595,555,000 feet. Timber in private holdings amounted to 347,040,000 feet, while 227,597,000 feet were classified as federal timber. State and county timber amounted to 20,918,000,000 feet. Thus fifty-eight per cent of the standing timber is in private ownership and thirty-eight per cent in federal ownership. The material below saw-timber size is estimated at 61,180,000 cords.

The United States Forest Service estimates the current

This article by William B. Greeley, Secretary-Manager of the West Coast Lumbermen's Association, is the second of a series picturing present-day conditions confronting our greatest forestry industry—lumbering—as told by men within the industry. Mr. Greeley's article presents his analysis of conditions that have rendered the industry prostrate in Oregon and Washington. The first article, published in the August issue, was by Wilson Compton, Secretary-Manager of the National Lumber Manufacturers Association, and described the general situation prevailing within the industry as a whole. Mr. Greeley's article will be followed by one by Mr. Henry Hardtner, dealing with the southern pine situation. The fourth article, by Mr. C. Arthur Bruce, will give the essential facts of the situation facing the hardwood industry.

The information contained in these articles has been laid before President Hoover's Timber Conservation Board to aid it in its consideration of the problems and consequences of overproduction in the forest industries and in its efforts to find constructive remedies. The situation as presented by the industry's spokesmen, however, is of such moment to public interests and to orderly conservation of our forest resources that the leaders mentioned in the preceding paragraph were asked to present their respective views in special articles for the information of the public.—Editor.

annual depletion from cutting for all products at 12,500,000,000 feet of saw timber and 1,800,000 cords of other material. This is about 190 per cent of the current annual growth, estimated at 1,361,000,000 cubic feet of timber. Adding average yearly losses from fire, wind throw, disease and other causes, the total depletion from all sources is placed at about 214 per cent of the present annual growth.

From these calculations

the forest resources of the region, assuming all timberlands as accessible, could carry the rate of depletion from 1925 to 1929, inclusive, which was materially greater than in 1930 and 1931, for about seventy-eight years.

There will be no danger of timber depletion on the west coast for at least several decades to come. Our immediate problem is rather to use sanely and economically the immense volume of standing timber we now have, and to

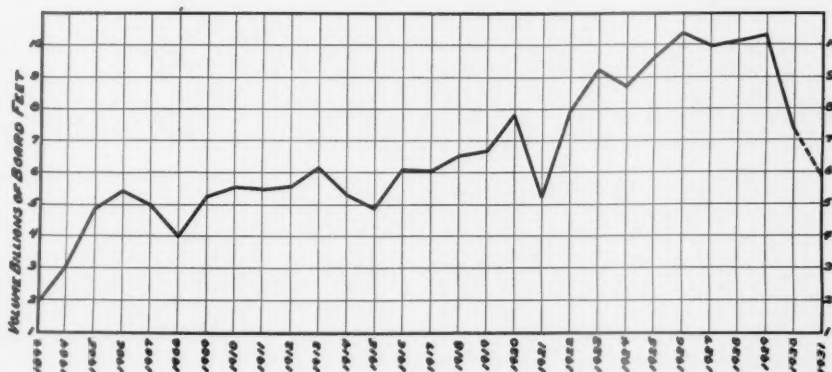
conserve it from the waste of destructive competition.

The primary need of reforestation on the west coast is greater financial stability for the industry. This will permit and encourage it to undertake plans for a sustained yield of timber or other permanent forms of land management. In other words, the industry must

acquire greater faith in its own future.

Trends in production of west coast lumber, by illustrative years, is as follow: 1899, 1,920,000,000 feet; 1904, 3,090,000,000 feet; 1909, 5,279,000,000 feet; 1914, 5,336,000,000 feet; 1919, 6,768,000,000 feet; 1924, 8,708,000,000 feet; 1926, the peak year to date, 10,411,000,000 feet; 1927,

## ANNUAL PRODUCTION OF LUMBER WESTERN OREGON AND WASHINGTON 1899 TO 1931 (ESTIMATED)





9,988,000,000 feet; 1928, 10,182,000,000 feet; 1929, 10,377,000,000 feet; 1930, 7,638,000,000 feet; 1931, if ratio of first five months continues during remainder of year, 5,827,000,000 feet.

From surveys made by the West Coast Lumbermen's Association, in 1929, there were 774 living mills in western Oregon and Washington, 706 of which were operating and 68 not operating. In 1930 there were 696 living mills, 402 of which were operating and 294 not operating.

In 1928 to 1930, the installed, living manufacturing capacity of the industry at the normal operation of the various mills was approximately 14,144,000,000 feet annually. Of this capacity there was utilized seventy-two per cent in 1928, seventy-three per cent in 1929, fifty-four per cent in 1930, and forty-two per cent to May 31, 1931. But even with such curtailment the manufacture of west coast lumber was excessive during the greater part of this period, as evidenced by abnormally high inventories and returns to the mills of less than costs of production.

Evidences of overproduction may be summed up as follows: Average returns on lumber sales reported to the west coast lumber industry during the past twelve years show average gains in five years out of the twelve, ranging from twenty-one cents a thousand feet in 1929 to \$2.93 a thousand feet in 1920, and average losses in seven years out of the twelve, ranging from eighteen cents a thousand feet in 1928 to \$2.15 in 1921. The average loss in 1930 was \$2.10 a thousand board feet, increasing during the first quarter of 1931 to \$2.48.

These cost figures include no interest charges—either book interest carried on invested capital or interest actually paid on current indebtedness. The actual out-of-pocket interest paid by the industry on its bonds and other debts probably averaged \$1.30 a thousand feet on the annual production of 10,411,000,000 feet in 1926. Viewing the industry as a whole, therefore, actual costs for interest paid have wiped out all profits during the last twelve years except in 1920 and 1923.

The low realization and continuing losses of the past seven lean years result chiefly from the fact that the operations of the west coast lumber industry are only very imperfectly adjusted to the consumptive demands of the market, but are dictated mainly by the exigencies of timber ownership and capital investments. This is the most crucial factor in the entire situation; and its public consequences in waste of resources, community losses, and delayed reforestation are grave.

From an analysis of the records of seventy-one properties, which were audited for a proposed merger in 1926, and checks from other sources, the capital invested in the west coast lumber industry is estimated as follows: Standing timber, 347,040,000,000 feet, \$502,674,500; logging improvements and equipment, \$84,942,682; manufacturing plants, \$145,368,207; and working capital, \$105,775,760—a total of \$838,761,149.

On the cut of lumber in 1926 of 10,411,000,000 feet, the maximum yet attained by the industry, these investments are equivalent to the following amounts *per thousand feet of annual production*: In standing timber, \$48.28; in logging facilities, \$9.06; in manufacturing plants, \$13.96; in working capital, \$10.16—a total of \$81.46. In other words, the invested capital per unit of production is about four times the average f.o.b. mill price received from 1924 to 1929, inclusive.

The "overload" of raw material is brought out strikingly by the investment in standing timber, of \$48.28 a thousand feet of annual production, or fifty-nine per cent of the total investment. This is well over twice the average value of each thousand feet of lumber sold during the six-year period preceding the depression of 1930.

In addition to the pressure to cut logs and lumber as the only means generally available for liquidating capital investments, there is an added incentive of tremendous weight, namely, to provide the current funds necessary to protect and maintain the capital investments.

Again viewing the industry as a whole, with all timber holdings included, whether now developed or not, such current charges are estimated as follows per thousand feet of 1926 production: Interest on interest-bearing indebtedness, \$1.30; timberland taxes, \$.85; protection of timberlands from fire, \$.09; taxes on logging improvements and equipment, \$.107; taxes on sawmills and lumber stocks, \$.386; logging equipment and sawmill insurance, \$.25—a total of \$2.983. The interest on unborrowed capital, at six per cent would represent a further charge of \$.353, while depreciation of mill and logging facilities, while normally based upon the scale of current production, is closely related to the protection and maintenance of capital assets. It averages \$1.40.

Under the burden of such largely fixed and inescapable charges—on the maximum cut of west coast lumber to date—it is readily understood why the manufacturers so generally believe that they "will lose less money by running than by shutting down." It is this *enforced operation* that is largely responsible for uneconomic manufacture, overproduction, and demoralized prices.

Of equal importance in the pressure for liquidation with these hard facts of investments and fixed charges, is the financial thinking and psychology of the industry. Western timberlands were acquired largely in the belief that, during the period of utilizing old growth stumpage the enhancement in timber values would fully return all carrying charges against it. Investors commonly figured that taxes, protection charges, and interest could be covered by seven per cent (although many allowed eight per cent) on the first cost; and, compounding this rate annually, doubled their "book" investment about every ten years. In the early period of the industry, the increase in timber values together with "overruns" on purchase estimates made good on such calculations.

During the past twenty years, however, carrying charges, especially timberland taxes, have steadily increased. In 1926, E. T. Allen, of the Western Forestry and Conservation Association, estimated that during the preceding twelve years timberland taxes in western Washington had increased 324 per cent, and were then advancing at the rate of about twelve and a half per cent annually. On the other hand, the trend in average stumpage values, at times stationary or even declining, at times moderately advancing, has fallen short of the earlier expectations. The prevailing opinion among Douglas fir timber owners today is that future increases in timber values will not recover the steady accumulation of carrying costs. Hence, the insistent pressure to liquidate their investments.

*A Survey of Logging Waste in Douglas Fir Region*, published by the United States Forest Service in 1930, estimates the timber of cordwood size or larger which is abandoned annually in west coast logging operations at more than 3,000,000,000 feet, log scale, or over 6,000,000 cords of sound wood. It includes 1,789,000,000 board feet convertible into lumber or more than one-sixth the annual cut in 1926.

The primary cause of such waste is overproduction, which always builds up excess stocks of low-grade lumber. The amount of waste is directly related to the extent of overproduction and operating losses. The more hard-pressed the manufacturer in recovering operating costs, the more does financial necessity force him to "skim the cream" of his raw material.

The waste is substantially greater today than in 1926 when the survey of the Forest Service was made. Many loggers are leaving a substantial proportion of the Standard No. 3 grade of logs in the woods. In one instance, a logging engineer advised his firm, in 1930, to bring out no logs scaling less than 600 board feet. Serious proposals have been made that all No. 3 lumber—now selling at \$2 to \$5 a thousand feet at the mill—be converted into hogged fuel or fed to the waste burners so as to take it out of the market.

The average west coast sawmill does not recover in salable lumber grades from fifteen to twenty per cent of the volume of its logs—in short lengths, defective grades, et cetera—which is normally utilized in eastern and southern lumber manufacture.

But with the best that can be done under market and operating conditions like those of the last seven years, serious continued waste of west coast forests is unavoidable. It is inherent in the overproduction, low realization and destructive competition which control the utilization practices of the industry. This constitutes a serious loss to the people of the states and nation which warrants public assistance to the industry in placing itself on a more stable and economic footing.

The lumber industry provides over sixty per cent of the industrial payrolls of Oregon and Washington. About 64 per cent of the value added to raw materials by its operations is paid to labor. The lumber industry of Oregon



Turrill &amp; Miller

Not simply during the current depression, but for the past twenty years the pressure to liquidate investments in timber, logging operations and sawmills has dominated the lumber industry in Western Oregon and Washington, says the author, and kept it in an almost chronic state of overproduction.

The development of the pulp and paper industry on the northern Pacific coast has been of the utmost benefit in providing utilization for lumber industry wastes, as well as in expanding the log market for hemlock timber. Sawmill wastes of pulping species are now utilized for pulp stock whenever the sawmill is within practicable shipping distance of a pulp plant. And the utilization of logging waste for the same purpose has begun.

It is also believed that the extension of *selective logging* will reduce the volume of logging waste by leaving portions of it in the form of standing green timber.

and Washington employed nearly 86,067 mill and logging workers in 1927; and paid out \$120,047,836 in wages.

The conditions in the industry which lead it through one cycle of overproduction after another cause serious community losses from irregular employment and the dislocation of labor. The frequent mill curtailments, ranging all the way from short weeks or short shifts to complete shut-downs, together with the wage cuts resorted to by many mills under financial stress, are breaking down the economic structure of many western Oregon and Washington communities. The unemployment in this industry during the last twelve months has ranged between 40,000 and 50,000 men.

Practically all the personnel still employed have suffered some cut in wages; and a majority of them have also had to accept reductions in working time—in many instances down to three or four days a week.

The results of such reductions and irregularity in employment are particularly severe in a region where lumber is the primary industry and cuts in its payrolls have widespread effects. For example, the curtailed production on the west coast in 1930 below 1929 decreased logging and sawmill payrolls by about \$22,144,000. This decrease took directly nearly \$9 per capita out of the buying power of the entire population in the two states. A further decrease resulted from the curtailment in the pine industry of eastern Oregon and Washington.

Similar losses from fluctuating lumber production extend to many other related manufacturing or supplying industries, including agriculture, for which the lumber industry constitutes a major market. Railroad car loadings are directly affected, since logs and lumber normally furnish over sixty per cent of the railroad tonnage originating in the two states.

The economic structure of the whole northern Pacific coast would be immeasurably strengthened if a way can be found to put its leading industry on a more stable and profitable basis.

Of equal or greater importance in the long run, compared with the present community losses which have been cited, will be the loss of both industry and resource if there is no answer to the problem except to liquidate investments and get out of business as rapidly as possible.

If the west coast lumber industry is compelled to run its course under conditions similar to those of the last seven years, western Oregon and Washington will suffer a critical loss from the forced and uneconomic depletion of their timber supply. There will be an aftermath of abandoned sawmills and idle land. Aside from the public timberlands, adequate reforestation will be greatly delayed; and a long gap in time must ensue before a "sustained yield" or any other permanent basis of forest management and industrial production can be established. And half the area of the two states is forest land, most of which has very doubtful future utility for any other purpose. In other words, the two states will face a critical loss in population and a very critical problem of economic rehabilitation.

For these reasons it is believed that—while our problems are primarily those of the industry itself—the public both regionally and nationally has important interests at stake. We believe that a reasonable measure of public cooperation is justified in enabling the industry to get upon a more profitable and permanent footing.

There is, of course, no single or simple solution of the industrial and public problems involved in the west coast situation. Betterment will necessarily be slow. It will require the doing of many different things in gradually building up the strength of the industry; and the responsibility for doing them must be accepted primarily by the industry itself.

Loss of faith in the unearned increment profit on standing timber has had beneficial results. So has the downward trend in lumber consumption. They are swinging the industry to a concentration on manufacturing and merchandising efficiency and on market extensions that is absolutely essential. It must underlie and support all other developments, and this clearly rests upon the industry itself.

In several respects, however, the cooperation of the Government and the public through the medium of the Timber Conservation Board will be beneficial, and is recommended.

The outstanding problem is to restrain, as far as practicable, the destructive tendencies in every direction of the overload of capital investments. This terrific driving power should be geared into a more orderly and economic utiliza-

tion of raw material, adjusted to the current requirements of available markets. My recommendations are addressed mainly to this problem.

The West Coast Lumbermen's Association advocates the plan, already under consideration by the Board, for publication by some authoritative, disinterested agency at intervals of not more than three months of the current lumber consumption, stocks on hand, and desirable production during the ensuing period to effectively balance lumber supply and demand. It believes that this would be helpful in guiding the operations of the regional industries and entirely sound from the public standpoint.

The association is convinced that the west coast lumber industry should be grouped into larger and stronger operating units. The industry is now widely dispersed. Its hundreds of independent timber owners, loggers and sawmills represent a great diversity in financial strength, manufacturing methods and costs, and in merchandising policies.

A merging of the bulk of these properties into four or five large operating units would be of benefit in the following ways:

It should give the industry greater financial strength and ability to carry its timber reserves.

It should provide more effective restraint upon overproduction.

It should aid economy and efficiency in the distribution of lumber.

It should lead to the more rapid development of by-products, correlated methods of utilizing raw material, and improved manufacture which are difficult for institutions of small or medium size.

In the same way it would encourage reforestation and more permanent forestry undertakings.

The geographical extent and diversity of the Douglas fir region make it wholly improbable that any consolidations could reach a stage of monopoly. The possibility of the several local consolidations now under consideration, of course, rests wholly with the industry itself; but the Association bespeaks—on the part of the Timber Conservation Board and the federal departments—a favorable attitude toward this means of enabling the industry to solve its own problems, within the limits necessary to protect the public from danger of monopoly.

In view of the critical conditions which have been described and their serious effects upon public interests, we feel warranted in asking the Board to consider an amendment or interpretation of the existing federal laws that would enable an industry like ours to regulate its production through agreement between its members—under proper safeguards. Effective control of production by this means would at the best be exceedingly difficult. But the industry should have the opportunity, under public sanction, to deal with the overshadowing evil of excessive production to the extent the collective abilities of the industry are able to cope with it.

Is it not time to substitute for the sweeping condemnation of any and all restraints upon competition as contrary to public interest, which is now written into the anti-trust laws, a more discriminating determination of the kinds of concerted action within an industry which actually promote public interest and national welfare?

It should not be difficult to express this principle in law. It would require giving some competent and disinterested umpire authority to determine what forms of industrial cooperation are or are not in the interest of the public, considering all phases of public interest or welfare that may be involved. Cooperative efforts to restrain destructive competition and utilize our natural resources sanely, or to promote stable and satisfactory conditions of employment, for example, should be sanctioned if actually found, upon disinterested examination, to be in the interest of the public.



In its simplest terms, the plan which I have in mind is one of self-government under a public umpire. Both the initiative and execution of any programs adopted would rest with the industry concerned. Any natural resource industry would be permitted to determine what cooperative action within its ranks is necessary and practicable to keep production in balance with demand, prevent avoidable waste, and stabilize employment. It would submit its proposals to a disinterested public agency. That public agency would determine whether the plan as proffered is in the public interest or whether it should be modified in certain respects to be in accord with the public interest. If the plan as approved by the public umpire is deemed workable and beneficial by the industry concerned, it would have authority to put it into effect through its own organization or internal agreements.

There is no likelihood that a policy of this nature in the case of the lumber industry could be abused by advancing prices to unreasonable levels. Lumber consumers would be amply protected by the sheer economic facts of the situation, namely:

The keen competition between lumber and other materials, which prevails in almost every form of lumber use.

The keen competition between different species of lumber manufactured in different portions of the United States in the great bulk of our markets, including the increasing competition from small sawmills.

The pressure to liquidate timber and plant investments in the West itself—a powerful factor for many years to come in producing the maximum quantities of lumber that can be marketed.

But, beyond and supplementing these economic preventatives of unreasonable prices, the proposal contemplates direct protection of the consumer by requiring the sanction of some disinterested public agency before any plan for the concerted control of production can be put into effect.

It would ill become me to criticize the sincere emphasis which has been placed upon the danger of timber depletion in past efforts to awaken the country to the importance of forest conservation. I have had a direct part in it. Nor is there any question as to the wisdom of forceful dealing with the facts and needs of localities whose local forest resources have been depleted and should be restored.

But the adequacy of our raw-material supplies for all forest product requirements for an indefinite time to come should be dealt with in national terms, like the supply of oil, wheat, or coal. The competitive status of the lumber industry has been seriously affected by the prevailing public belief in the early exhaustion of timber in the United States.

A statement by the Timber Conservation Board to clear up this misconception would be of material value to the

lumber industry, and it is believed—to the consuming public as well.

The influence of publicly owned timber in the Douglas fir region is necessarily great. Of all standing timber in the region, using the revised estimates of the Forest Service, forty-two per cent is in public ownership of all forms and thirty-eight per cent is in the ownership or control of the Federal Government.

During the last three years the cut of federal timber has averaged, per year, from the revested Oregon grants 395,105,000 feet; from the National Forests, 294,399,000 feet; from Indian reservations, 153,069,000 feet—a total of 842,573,000 feet.

The total cut from federal timberlands during the last three years has been nine per cent of the entire cut of lumber in the region.

The actual cut of federal timber is therefore an appreciable factor both in volume and in its competition with heavily taxed private timber. It is a contributing factor to over-production. The policy followed in the future disposal of the 227,597,000,000 feet of remaining federal timber is of critical importance to the possibility of stabilizing conditions in the industry.

It is recognized that arbitrary restrictions cannot be imposed on sales of federal timber, especially where established operations depend upon it for a continued supply of logs. It is strongly urged, however, that the federal agencies adhere to a policy of selling timber only where needed to supply established operations or uses, and avoid sales which would have the effect of increasing the present manufacturing capacity of the region.

The policy of this character recently adopted by the Forest Service as to the timber in national forests, is endorsed and the uniform application of this policy to all timber owned or controlled by the Federal Government is urged.

A liberal policy in extending contract periods and revising yearly cutting requirements where purchasers of federal timber wish to curtail their current production is also urged.

I would also emphasize the constructive opportunity for utilizing federal timber so as to aid the western lumber industries in attaining more stable control of production and greater permanency of operating life. This contemplates a comprehensive policy for making federal timber available for "sustained yield" operations by the owners of intermingled or adjacent private timberlands, who will, under mutual agreement, adopt a similar management of their own holdings. It would be one of the most effective means of getting the industry headed in the direction of permanent operation rather than hurried liquidation.

## IN THE OCTOBER ISSUE

Ben Ames Williams, one of America's foremost writers, and a steadfast conservationist, presents an intriguing and enlightening picture of historic Blackbeard Island in the South Atlantic, once the hideout for the famous pirate Edward Teach, now proposed as a bird sanctuary. Read his *Treasure Trove*. Other outstanding articles include *Fertilizing Shade Trees*, by Homer L. Jacobs—how and when to fertilize street and lawn trees, and what to use; *A City Man Tries Forestry*, by Cary A. Rowland—what a city novice did with a small woodlot; *A Chip Off the Old Block*, by William B. Hobson—a hunting story of the Southern Appalachians. There will be many others equally as interesting.

# Fremont's Tree of the Desert

BY RALPH F. MOCINE

"SO THEY pushed on to a distant mountain they beheld in the east. . . . At one place near the base of the mountain they observed a cluster of cottonwood trees and thinking there might be water there they went straight to the cottonwoods. Suddenly they found themselves among a strange people who were dwelling around a spring."

In this, from the *Origin Legend of the Navajos*, the central theme is thirst—thirsty men in an arid land searching for water, an ever-recurring drama of early western travel. And in the east trees play an important rôle.

Indians, mountain men, and later the surging throngs of empire-builders all knew the cottonwood tree was a friendly omen.

It was rarely absent from the background of the shifting panorama of the trail. It ministered to the voyageurs' need for shelter from sun and storm, it furnished fuel for campfires, and sometimes as a green beacon which beckoned across desert wastes, it led unerringly to hidden springs. For in all the wilderness of prairies, the Great Basin and the deserts, this tree is preeminently the indicator of water. Its gay green foliage billows along the margins of rivers—it holds lonely vigil over remote desert wells.

Following their keen instincts, the buffalo and the Indian first traced the lines of travel. The early white hunters and trappers who ventured into this unknown trod these paths first warily, then with confidence. They learned in time that no matter how aimless the course appeared, it led inevitably to water and good hunting.

Compared with the forested areas of the North, East and Northwest, the deserts of the Southwest and the Great Plains were all but treeless. There must have been a vast monotony in the level lines of this naked landscape to eyes which had been accustomed to the diversity of line and mass which

featured the hills and tree-clad slopes of their old homes. So at times these wayfarers in a strange land must have thrilled as they came suddenly upon some pleasant sight of green oases of cottonwoods in the river bottomlands.

Man has always loved trees. In his heart they have found a place as friends and allies. In his imagination they stand

as symbols of qualities and ideals towards which he aspires. Certain trees, as the oak and the pine, so intimately associated with the life of olden civilizations, occupy places of honor in his literature. This tree guardian of the trails, the cottonwood, has won no such recognition in song and story, yet it does enjoy a part of some importance in the brief annals of western travel.

The early voyageurs were men of action; their records reflect only the highlights in their fighting days and nights. Apparently they had little concern with the esthetic aspect of trees or of the landscape; their interest in the cottonwood was purely utilitarian. As the days along the seemingly endless way lengthened into weeks and months, they became aware of a definite alignment of nature's forces, many hostile, some few friendly. Their diary is a record of struggle with these forces. Mention is made of travel over plains seared by days under a blazing sun, of scarcity of food for stock, of failure of water supply and game, of meeting with Indians often warlike.

But there were carefree days as well. Here very frequently the cottonwood stood in association with nature's more bountiful moods—cool springs and game for their rifles, rest after toil in sylvan camps. It is by the nature and insistence of the wayfarer's entries alluding to this tree that some idea may be had of its place in his primitive scheme of life.

The name of John Charles Fremont, explorer and soldier,



Fremont's tree—growing in a desert canyon. These are large specimens of cottonwood (*Populus fremontii*) with unusually straight trunks. The tree in the foreground is about one hundred feet high with a trunk diameter of four feet or more.



of whom has been written "from the ashes of his campfires have sprung cities," has been given to a widely distributed western species of the cottonwood, *Populus fremontii*. Surely those who bestowed this name must have sensed its particular fitness and understood something of the relation borne by the tree to the heroic journeys of the "Pathfinder." For Fremont was a lover of nature and a naturalist as well; his journals abound with evidence of a lively and intelligent interest in plant and animal life.

At times as a man of science he displayed keen pleasure over the discovery of a species of plant or tree heretofore unknown to him. On another day all his enthusiasm was engaged in descriptions of masses of wild flowers. Written into his records is a fine zest for the excitements of life in a primeval land, and it is the reflection in his pages of this relish which makes such fascinating reading.

Through his observant eye one may still enjoy in his journal some of the glamour of life in a wilderness which has vanished. Reference to the cottonwood is found on page after page in his writings; very often these allusions are incident to making camp, as this tree was a familiar and welcome feature of their evening bivouacs.

Occasionally a paragraph will reflect a more pointed interest. He speaks of the custom of the Indians in firing the prairie in order to promote better growth of feed for both pony and buffalo; a practice which no doubt conduced largely to the treeless condition of vast areas.

Trees were very generally confined to the courses of streams. Making note of this Fremont adds a most interesting observation: "The cottonwood deserves to be called



Two fine cottonwoods on the border of a meadow. Along the stream in the middle distance is a characteristic growth of these trees which played such an important rôle in the lives of the early explorers and voyageurs.



Cottonwoods are often found growing in more or less grotesque forms. Sharply separated or inclined trunks such as these are not at all unusual.

the tree of the desert," he said, "growing in sandy soils where no other tree will grow, pointing out the existence of water and furnishing the traveler with fuel and feed for his animals."

Again his eager eye records an illuminating characteristic of the American Indian. In describing an Indian village situated on the margin of a stream in an open wood he calls attention to the invariable choice by the Indian of a campsite which afforded fullest enjoyment to his love of beautiful scenery. In another passage he mirrors a vista into emigrant life along the trail: "We descended into a beautiful bottomland which presented a picture of home beauty which went directly to our hearts. The edge of the wood for several miles along the river was dotted with white covers of emigrant wagons, collected in groups at various camps, where the smokes were rising lazily from the fires, around which the women were occupied in preparing the evening meal. The children playing in the grass and herds of cattle grazing along the bottom, had an air of quiet serenity and civilized comfort that made a rare sight for the traveler in such a remote wilderness."

In contrast with this association of cottonwoods with Arcadian camp scenes is this more sinister episode in the Indian country, speaking with Kit Carson of the belated absence of one of his hunters, Tabeau, who had gone in search of a mule who had strayed, he continues, "A smoke arose suddenly from the cottonwood grove below which plainly told us what had befallen him. It (Continuing on page 573)



Its sheer height unsurpassed, Mt. Whitney rises 14,496 feet, the highest mountain in continental United States.

Photograph by Frasher

SIXTY-SIX years ago, on July 2, 1864, to be exact, a United States Geological Survey party working in the Kern River region of the Sierra Nevada of California, chanced one day to climb a mountain near their camp and, to their astonishment, found before them a wilderness of lofty crags far surpassing in elevation the 13,000-foot peak on which they stood. Spurred by this discovery, two members of the party, Clarence King and Dick Cotter, obtained permission from their leader, Professor William H. Brewer, to penetrate this sea of snow-capped mountains. On their return to camp a week later they reported that they had seen in the distance a beacon peak of the Sierra, composed of an "in-accessible bunch of needles," which according to their measurements exceeded in height any known mountain in the West. They named it in honor of Professor Josiah Dwight Whitney, chief of the Survey. Thus was discovered Mt. Whitney, 14,496 feet, the highest peak in continental United States.

But this king of the High Sierra was not soon to be conquered by man. For nine long years after its discovery it defied every effort to scale its rocky slopes, and although many neighboring peaks were scaled by mountaineers and surveyors under the false impression that they were on Mt. Whitney, it was not until August 18, 1873, that the first white man set foot on its lofty summit. The real conquerors of the peak were Charley Begole, Johnny

# By Horseback to the Top of America

By WALLACE HUTCHINSON

Lucas and Al Johnson, three fishermen who were camped with a large party of other Inyo County people at "Soda Springs" in the Kern River basin. These three men left camp on August 17, and climbed to the summit of what was commonly supposed to be Mt. Whitney, only to find beyond them another and much higher peak. Resolved to reach this new summit they camped for the night and the next day, and after many hours arduous climbing in which they crossed two deep canyons, succeeded in reaching the real Mt. Whitney and had the honor of being the first to stand on the greatest elevation in the United States.

Since the first conquest of Mt. Whitney, many mountaineers have succeeded in reaching the summit, although the trip has always been fraught with serious discomforts. The old and most direct trails having long since been obliterated by snow and rock slides, it has been necessary to take a circuitous horseback route which required four days for the round trip. Also, the last and most difficult part of the trip had to be made on foot over formidable talus slopes and in the rarefied air of high altitudes where strenuous climbing is a severe tax on muscles, heart and lungs.

Realizing the attraction of Mt. Whitney and the pleasure that such a trip would afford thousands of people, if they



Conquering the highest mountain, and raising the Stars and Stripes over the stone house built by the Smithsonian Institution on the summit of Mt. Whitney.

were able to reach the top of the United States in a reasonable length of time and with a fair degree of comfort, citizens of Inyo County proposed to the United States Forest Service that a new trail be built to the summit by the most direct and feasible route. This proposal was agreed to by forestry officials and work on the new trail started in 1928.

As Mt. Whitney is located on the boundary between the Inyo National Forest and Sequoia National Park, trail construction work was carried on under a joint agreement between the United States Forest Service and the National Park Service, with cooperation from local organizations and individuals. The route selected was up Lone Pine Canyon, in the Inyo National Forest, to the crest of the High Sierra a few miles south of Mt. Whitney, and thence along the west slope of the range, in the Sequoia National Park, to the summit. Two crews were mustered and put to work on the trail in the early summer, to continue on the job until winter storms drove them from the mountains.

The hardships endured by these trail crews were like those of an Arctic exploration party. As the trail went forward camps had to be made far above timberline, at elevations of from 12,000 to 13,000 feet and over. Here strong winds, freezing temperatures, and snow and sleet beat upon them and drove from the job all but those made of sterner stuff. At first the men suffered severely from the effects of the altitude, but all soon became acclimated to work in the rarefied atmosphere. The only water available was melted snow, or a supply packed in by burro train from the lower valley regions. As the nearest tree growth was far below, gasoline stoves had to be used for cooking and warmth. Heavy clothing and sun goggles had to be worn. But despite

every hardship and handicap the trail went on and up. On September 4, 1930, after three summers of grueling work and the expenditure of \$25,000, the trail was completed. On that day more than half a hundred people—Government officials, mountaineers, sportsmen and sports-

women, and "tenderfeet" from the cities—assembled at Lone Pine in Owens Valley for a pilgrimage to Mt. Whitney over the new horseback route and appropriate dedication ceremonies at the summit. Leading the cavalcade were Horace G. Albright, director of the National Park Service, Roy Boothe, supervisor of the Inyo National Forest, and Col. John R. White, superintendent of Sequoia National Park.

Zigzagging with countless twists and turns the trail led up a rocky slope to a narrow pass on the flank of Mt. Muir, named after the celebrated mountaineer and naturalist of California. Here it crossed the crest from the Inyo National Forest on the east slope of the Sierra and made the final ascent to the summit from the west side within the Sequoia National Park.

The east slope of Mt. Whitney breaks sharply from this summit into a perpendicular cliff several thousand feet in height. This face has never yet been scaled by man, though it has taken its toll of inexperienced climbers who have attempted the perilous ascent. The west side of the mountain is not so precipitous. Here great talus

slopes sweep up to a granite-covered summit. To the south of the peak is a long range of sharp, rocky needles with deeply cleft chimneys in between. The trail skirts these needles and offers breath-taking views, thousands of feet in depth, both to the east and west, as it winds its way through narrow defiles—one of the most spectacular pieces of mountain trail in the West.



Photograph by Frasier

On the way to the top of America by horseback—above timberline on the Mt. Whitney trail.





# A FOREST ENIGMA

## One of Nature's Mysteries of the Southern Appalachians

BY PAUL M. FINK

Photographs by the Author

**T**HERE is a dark forest mystery in the mountains of the South, a mystery that for years has defied all efforts at solution. Foresters, botanists, geologists, nature lovers in general, all have been called upon for help, but none can give the proper explanation, and today the question is just as puzzling as it was at the beginning. No unassailable reason can be found for the cause of the numerous "balds" or natural clearings found perched upon the summits of so many of the southern Appalachians.

These open spots in the forests mantling the ranges, in general situated on the very tops of the mountains and in size ranging from a few square rods to hundreds of acres, are great highland meadows, clear of timber and carpeted with a luxuriant turf of succulent native grass. Conspicuous examples are Roan Mountain, whose broad, grassy top

altitude range of three thousand feet. Another argument disproving the timberline theory is that the surrounding timber does not dwindle away to dwarfish shrubs and gnarled caricatures of trees before finally disappearing. On the contrary, the line of demarkation between forest and field is as sharp and abrupt as the edge of a clearing made by man's hands.

Human agencies cannot be assigned as the cause, save in a few well-known instances. The earliest white settlers found the mountain tops as devoid of timber as they are today. Nor could they have been cleared by the Indians in prehistoric days, for it would have been too gigantic a task, far beyond the possibilities of their rude stone axes. Indian energy, or rather lack of it, would not have gone to such incredible labor without some vitally compelling cause.

And even had they done so, in the centuries which must have elapsed the clearing would have been completely reforested.

It has been suggested that they are the sites of great forest fires, ages ago, when the intense heat destroyed



is rimmed in by dense spruce, and Thunderhead, in the Great Smokies, overlooking lower slopes grown in hardwoods, oaks, chestnut and birch. Everywhere contrasting sharply with their forest surroundings, these great clearings are in their own way as serenely beautiful as their reason for being is mysterious.

At first thought it would appear that they are the result of being above timberline. All very good, were it not for the fact that at their latitude timberline is around ten thousand feet above the sea, and none of the southern mountains approach that figure. Too, the "balds" are not confined to the very highest tops alone, but are found over an



Their genesis unsolved, these "balds" have even been attributed supernatural origin. This shows the edge of the famous "bald" on Roan Mountain and—above—a small portion of the "old field" on Thunderhead, in the Great Smokies. Grassily beautiful and unexplained, these great clearings occur on or near the summits of many of the Southern Appalachians.

every trace of vegetation and so profoundly changed the nature of the soil that it could no longer support tree life. This can hardly be the solution of the problem, for among these mountains there is no ancient burn, definitely known as such, that has not in a short space of years sprung up in a jungle of Peruvian cherry, blackberry briars and bushes, a well-nigh impenetrable tangle, under whose shade the young timber has soon reestablished itself. (Continuing on p. 556)

# A New Redwood Park

**T**HE Bull Creek and Dyerville Forests, acclaimed by many the supreme development of California's giant redwoods, and considered of the same national importance as Yosemite, Grand Canyon and other unique natural wonders, are assured of preservation as a part of California's State Park system. The California State Park Commission has reported that negotiations with the Pacific Lumber Company, owner of these redwood grooves, have reached a successful conclusion, and that 10,000 acres including the watersheds of Bull Creek, Decker Creek and Cabin Creek, as well as the North and South Dyerville Flats, will be acquired. The Save-the-Redwoods League has announced that it has secured sufficient contributions and pledges from public-spirited individuals and organizations to match State Park bond funds for the acquisition of these lands.

With the additions now assured, the Humboldt State Redwood Park, of which the Bull Creek-Dyerville area is part, will extend for over fifteen miles along the Redwood Highway north from Miranda, Humboldt County, including the finest of the redwoods on both banks of the South Fork of the Eel River which at this point parallels the highway. It will extend four miles west, up Bull Creek, from the point where this stream joins the South Fork of the Eel near Dyerville, 245 miles north of San Francisco. The main unit of Bull Creek extends from Grasshopper Ridge on the south to the north ridge of the

Bull Creek Basin, a distance of four and one-half miles. Aside from the matchless beauty and scientific interest of this new park, it is a region of great recreational value. At least fifteen miles of river will be included, with varied possibilities in the way of swimming, fishing and canoeing. The State Park Commission is working out a plan for camping and picnicking at specified places where proper facilities have

been provided, at the same time preserving inviolate the trees and luxuriant undergrowth and wild flowers in the memorial groves and in the finer stands of timber along the river. Numerous trails, which can be traveled on foot or by horse, already lead to the "high country" along the ridges west of the river, and it will be the policy to develop additional trail routes in the future.

The Bull Creek-Dyerville area is most accessible by automobile or rail. It can be reached within nine hours' travel over the excellent Redwood Highway, or by daylight or overnight trip from San Francisco to South Fork.

It was in Bull Creek

Flat that President Herbert Hoover and his party camped in 1928, when he expressed the hope that these redwoods might ultimately be preserved for posterity, and Secretary of the Interior Ray Lyman Wilbur also said, "The forest constitutes one of the greatest assets of California and of the United States and will have increasing value as a spiritual influence in the life of the people."



In Bull Creek Flat—California's New Redwood Park.

# WHAT ARE NATIONAL PARKS?

By WALLACE W. ATWOOD

President of the National Parks Association

**M**OVEMENTS in conservation have characterized America's national life throughout the last fifty years. They have been among the forward-looking movements in this nation but they have not anticipated any too soon the absolute necessity and economic wisdom of the wise conservation of soils, forests, oils, coal, ores, many forms of sea life, and large out-of-door places where the leisure of the American people may be spent under healthful and inspiring conditions. The day has arrived when the need of such reservations is appreciated by most mature citizens.

Few people with homes in the eastern part of this country have had the privilege of living for any length of time in the great National Forests of the West. Official survey work on government lands has given me that privilege, and for months at a time, through a period of twenty-five years, I have had the pleasure and the very great privilege of wandering day after day through great forested regions, endeavoring to discover the outcrops which would lead to an unraveling of the geologic history in those portions of our National Domain. I have wandered through areas far above the tree line in our high mountain regions where the heavy rains fall and snows accumulate,

which help to nourish the trees on the middle slopes of those mountains during the summer seasons.

Few of the readers of this article are indebted as much as I am to the kindness and hospitality of forest rangers, of

lumber men and of the forests themselves. Those of you who have been so delayed on a mountain trail that it was impossible to reach camp by nightfall and found it necessary to unsaddle, build a little campfire and remain out in the depths of a forest all night, with your saddle horse as your lone companion, will sympathize with me in an affection for the wild places of this earth. Such experiences do not repel affection, they actually strengthen one's love for the great out-of-door world and assure one of an excellent appetite for breakfast the next morning, as soon as camp can be reached.

To all those who have become well ac-

quainted with the natural features of our country, it is clear that there are a few regions of outstanding scenic beauty or of outstanding scientific interest or possibly of outstanding educational significance. Most of those areas have now been set aside as National Parks. Some of them are of special value to those interested in archeology. Most of them are



Sentinel Rock, in the Yosemite National Park. There are few regions of more perfect, quiet beauty—it is a veritable paradise for lovers of the outdoors.

© By Fred H. Eiser.





In Rainier National Park. A natural wonderland lies around Rainier, the "Snow Queen." This shows the new highway into the Sunset Ridge district, on the northeast side of the mountain, which is reached by way of the White River entrance, and gives an exquisite tree-framed view of the great mountain, clothed in her royal mantle of dazzling snow.

Below: The majestic Tetons thrust their rugged beauty high in heavens blue, in the Grand Teton National Park. This view is made from the road. Here may be found "relief from the strain, noise and dust of our monster cities, and healing solitude."

remarkable outdoor laboratories for students or for laymen lovers of the natural sciences. In the formal official language they were set aside "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyments of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." As time has passed Americans have come to realize that they are not amusement resorts, they are natural wonderlands unique in many cases in this country and in some cases in the world.

I doubt if there is any place in the world where so many profound lessons in geologic changes are so clearly shown as in the Grand Canyon of the Colorado. There is no example on the surface of the earth where the work of weathering and of running water are so well illustrated as in that wonderful gorge. The Grand Canyon is over a mile in depth and from ten to twelve miles wide and 250 miles long. It exhibits an architecture unequaled in form or in line or in coloring anywhere in the world.

Imagine, if you will, for a few moments, a rock wall 5,000 feet deep and 250 miles long in which there are sands, gravels, silts and shell muds that accumulated in an inland sea during millions of years. In these sediments there are records of ancient life that unfold to all who would read a wonderful story. There are structures that demonstrate that in the making of that wall of rock the lands were at times uplifted, mountains were formed, and worn away. There are indications in some of the layers that the sea withdrew for a time, that the climate became very dry and that winds swept over the area and distributed sands far and wide. The principles learned in this one locality have a permanent value to the observer. They can be used over and over again in various parts of the world in the interpretation of the features of certain landscapes.

The Sequoia National Park contains the oldest and most majestic of the living objects on this earth. Some of those trees are between 3,000 and 4,000 years old. They have occupied the west slopes of the Sierra Nevada while great nations have risen with pomp and ceremony and later passed away, while numerous wars have been fought, and while dynasties have come and gone. They have withstood the fires of centuries and the attacks of storms and of lightning and the attacks of insect pests. They have remained while all others of their species, once widely scattered on this earth, have disappeared. Their dignity and majesty are beyond that of any other living objects.

There are few, if any, mountain canyons where the work of streams and of alpine ice are as well illustrated as in the Yosemite. On the slopes of Mount Rainier are the largest and most superb of alpine glaciers in our country. These great tongues of ice are actively at work day and night, year after year as the centuries pass. There the student may become acquainted with the origin, growth, movements and the work of mountain glaciers. It is a paradise for all who love the beautiful.

Nowhere in the world is there a volcano like Kilauea in the Hawaiian National Park. Nowhere in the United States proper, except in Lassen Peak National Park, have there been any volcanic eruptions during historic times. Nowhere on this earth are the secondary phenomena of vulcanism so strikingly illustrated as in the Yellowstone National Park. These three parks certainly have unique qualifications.

Where, except in Glacier National Park, can be found two great ranges of mountains that have traveled overland for at least fifteen miles and since coming to rest have been dissected by streams and glaciers? A force that could and did move thousands of cubic miles of rock, a mass more than the Big Smoky Mountains, is beyond the power of appreciation. All of the wonderful accomplishments of engineers fade into insignificance when compared to this one change in the landscape in one small portion of the earth's surface.

Where in this country are there archeological records of equal interest to those in the Mesa Verde and the National Monuments of the Southwest? The story of the petrified trees of Arizona unfolds a record of climatic changes almost beyond powers of belief. There where today a few scattered cacti and yucca plants struggle to find and retain moisture enough to keep alive, were formerly magnificent forests with trees over one hundred feet in height and up to six feet in diameter. Americans are coming slowly to realize that atmosphere has had a remarkable history and that the climates of the world have not always been what they are today.

The outstanding quality of National Parks is that they are unique natural wonderlands. They are the best of outdoor laboratories where the story of the making of this earth is clearly written, where the records of life and of remarkable changes in the landscape and in the climates of the earth are preserved.

For a time the National Parks were thought of as the playgrounds of America. They are and always should be delightful places for recreation. They are not and never should be centers of amusement. Their value lies in their inspirational and spiritual appeals and in their great educational significance. High standards have been established for admission into the groups of National Parks and from now on each time that a park is established the Nation should aim to select the outstanding example of some type of landscape. An area selected for admission into the system of National Parks should make an appeal to the people in all parts of the country. It should not require local promoters. Its promoters should be as widespread as the states of the Union. The appeal should be so strong that the representatives from all parts of the country should ask for the reservation of the area but that appeal should never be based upon a commercial advantage to a group of individuals, to a community, or to a state. It should never be based upon a political advantage to anyone in office or seeking election to office.

On May 13, 1918, Franklin K. Lane, then Secretary of the Interior, wrote to Stephen T. Mather, who was then director of the National Park Service as follows: "In studying new park projects, you should seek to find scenery of supreme and distinct quality, or some natural feature so extraordinary or unique as to be of national interest and importance. You should seek distinguished examples of typical forms of world architecture. . . . The National Parks System as now constituted should not be lowered in standard, dignity and prestige by the inclusion of areas which express in less than the highest terms the particular class or kind of exhibit which they represent."

Large and very attractive and beautiful areas which are primarily of local value and of local significance should be set aside by the local communities in each of the states and in each of the territories of the United States. The movement to develop state parks and state forests and various recreational areas throughout the states is highly commendable. The states should assume a very large share in providing areas for wholesome outdoor recreation. Certain of the states have already adopted this policy and have gone far toward the carrying out of plans for the establishment of state forests, state parks and playgrounds. It is through this type of cooperation that reservations may be made easily accessible to the ever-increasing numbers of people who have freedom for recreation, who find longer and longer periods available for pleasure and for travel.

Nine-tenths of the country's population are in the states east of the Rocky Mountains, and it is in this eastern portion, particularly, where the population is dense, that more playgrounds are needed and where more forest reservations, and more city and state parks should be established. The cooperation of states in the establishment of interstate parks is also commendable. Cities, towns and villages should all

be at work on the establishment of playgrounds or recreational areas that are easily accessible to the people in their communities. Many roadside forests should be maintained for their beauty and the esthetic value to all who follow those highways, but a little back from the main thoroughfares good camp grounds can often be provided.

There is a very great value to the local community in sharing in the work of preserving the beautiful and in providing playgrounds for their people. The responsibility and the opportunity for such service should not be taken from the local community. There is a strengthening of character, an elevation in the culture of a community, when emphasis is placed upon the enjoyment of the beautiful and in the wholesome and rather simple pleasures of the out-of-doors.

The National Parks impel attention. They are spectacular exhibits in the realm of nature. They should all be places of revelation where the eyes and the souls of men are opened. There the visitor should come into intimate personal contact with nature. A National Park should be a place where ordinary tasks are laid aside, where the spirit is uplifted, and the emotions are deeply stirred. Crowding should be avoided in these carefully selected wonderlands. The herding of visitors in such an environment is distracting to most people and an effort should be made in planning the developments of National Parks to prevent crowding at the observation stations.

America needs now and may need even more in the future, places that are easily available where its citizens may as Grosvenor Atterbury once said, "find relief from the strain, noise and dust of our monster cities and find healing solitude, peace and beauty in some undefiled natural environment."

In National Parks, as elsewhere, the observer sees commonly only those things he has been trained to see, unless he is specifically directed to novel features. If in a park the outstanding features are carefully analyzed and an adequate plan developed which will enable the visitor to see and to understand even a fragment of the story recorded in the landscape, he will carry away an emotional experience, both esthetic and intellectual, that may persist for a long time. The esthetic factor is enhanced if the imagination of the visitor is stirred to visualize and to understand the story of the development of the natural features before him. He is thus brought to realize at first hand the magnitude of nature's forces and of the vast time-element involved. For these reasons it is important that except educational guidance be provided in each of the National Parks. It may be the great lesson of time that is recorded in the physical changes in a landscape that will impress one person. It may be the constant changes in the climate of a country, in the vegetation, in the land forms, or in the beauty or life, it may be that profound lesson of continuity which one learns from a study of the out-of-doors, which gives a thrill, a strange inner feeling of being in the midst of forces greater than most people can comprehend.

All buildings erected in the National Parks should be simple in design and finish and they should harmonize with the landscape. Heavy investments in plants and elaboration of services tend not only to higher costs to the public, but to competition for patronage, resulting in the introduction of resort and amusement features wholly inappropriate to the National Parks themselves. No building should be erected in the parks solely for amusement purposes.

No buildings for the accommodation of visitors or park officers should be put in the midst of the choice scenic areas, or so placed that they obstruct or interfere in any way with the views that all who visit the park should obtain. The buildings in the parks should be set back at a considerable distance from the special scenic features. This is not only to avoid the introduction of artificial elements into the view but to provide suitable and artistic perspectives. The foreground of a picture is of very great importance. Many mistakes have already been made in placing hotels and other buildings too near the objects of interest. Other mistakes have been made in placing hotels or lodges at the choice observation stations. The visitors to the parks should be brought within easy walking distance of the best outlook points but hotels, lodges, or camps should not be allowed to occupy those points. The choicest outlook stations should be free of hostleries, garages, filling stations and all such elements. The wonderful lessons and the "sermons that are waiting to be drawn from the vast canyons, deserts, mountains, lakes and rivers of these parks—eloquent beyond all words—are somewhat obscured when we see them through a mist of bell-hops, tips, hostesses, fox trots, and all the other concomitants of a modern 'first-class hotel.'"

Wholesome outdoor recreation, such as hiking, riding, fishing, camping, and climbing, appropriate to the parks, should be encouraged. Organized recreation requiring invest-

ment in plant or occupying areas that should be left in a natural state, and amusement and resort features, are inappropriate for National Parks, for these activities interfere with the enjoyment by the public of the beauty of the landscape and with the special purposes for which the National Parks are established.

When present in one of the great National Parks and located at one of the carefully selected observation stations, and in the quiet of the natural world and not in a city crowd, one recognizes before him the record of forces and of influences and of physical and of biological changes which he cannot understand. He appreciates that there are plans beyond his comprehension, and he cannot avoid the thought that there is some great and wonderful plan in the universe in which he is called upon to play a little part.

As Dr. John C. Merriam, President of the Carnegie Institution, once wrote, the National Parks are carefully selected areas where "one looks through the veil to meet the realities of nature and of the unfathomable power behind it."







## A Down East Trout Farmer

The Story of William H. Rowe, the Man Who Stocked  
President Hoover's Favorite Fishing Streams

BY MARY C. H. KELLEY

**W**ILLIAM H. ROWE, of West Buxton, Maine, may not aspire to a high political or governmental office, but that he has contributed greatly to the destinies of the nation, indeed the world, is a fact that he may well dwell upon when passing years mellow his memory and enrich his reflections, for it was this Maine "trout farmer" who, in the spring of 1929, supplied the fish to stock the trout waters of the President in the Virginia mountains, along the banks of which, between casts, matters of universal significance have been weighed. To measure the part the down East trout farmer played in these Rapidan conferences would be to conjecture; but that a quiet hour along a wooded stream where trout are challenging will prepare one for sterner things is a secret every angler knows.

From the Cedar Springs Trout Ponds, the largest privately owned fish hatchery in America, Mr. Rowe has dispatched many thousands of trout to fit the citizens of his country for "sterner things." Each year, under his experienced and sympathetic hand, from twelve to fifteen million trout are brought into being, eventually to be transplanted to the clear, cool streams of the mountains of America and Canada.

Beginning in 1909 with a little pond in West Buxton that had been stocked forty years before with trout and pickerel, Mr. Rowe has developed his enterprise with unusual success. Today the Rowe Hatcheries comprise the original holdings at West Buxton, known as the Clear Spring Trout Ponds, and a newer development at Shy Beaver Pond in the town of Shapleigh, ten miles away. There are a thousand acres of land covering marsh, forest and hillside, a mile and a half of artificial trout pools, and another mile of pens. There are springs innumerable, three fine fishing

streams, and four natural ponds. Both Shy Beaver and Clear Spring ponds are situated in hollows surrounded with picturesque marshes. Beyond them are hills of scrub oak and pitch pine. An occasional old-growth maple or white oak stands sentinel here and there, reminding one of the days long passed when on these very hills great trees were felled by order of England's king, to be hauled to the sea and there shipped to England for the Royal Navy.

More than half a million brook and rainbow trout are kept in the ponds and pens. The breeders are confined in the natural ponds and when the breeding season begins, about the first of November, these start to go upstream to spawn. They are thus induced to enter certain pens where they are detained to be stripped of their eggs and milt. By a process of massage the eggs, which are about the size of Canada peas and which roll separately like shot, are taken from the female and placed in shallow trays. The milt is stripped from the male in the same manner and deposited over the eggs. Great care is exercised to keep both milt and eggs away from the water for an unfertilized trout egg will become sterile in two minutes after it is wet and the fertilizing power of the milt is almost immediately lost. A trout weighing one pound yields about 1,200 eggs, a two-pound trout, 2,400 eggs, and so on in the same ratio.

After fertilization the eggs in the shallow trays are placed in troughs over which there is a continual flow of fresh, cold water. In the state hatchery the time required for hatching is 120 days, but in the Rowe establishment, due to the perfect temperature of the water, the eggs hatch in sixty days. The nonfertile eggs have to be culled out of the trays one



Proving the Maine "trout farmer" is no mean angler himself.

at a time, sometimes as many as a million in a season, for if allowed to remain they develop a spore which injures the good ones. At the end of forty days life is visible in the fertile eggs and they are then known as "eyed eggs" and are ready for the market. They are sold at the rate of from one dollar and a half to two dollars a thousand. The Rowe hatcheries produce yearly from twelve to fifteen million eggs which are sold throughout the United States and in Canada. Millions have been purchased by the United States Bureau of Fisheries and millions more by the different state hatcheries. Maine alone, with seventeen rearing stations and ten hatcheries, last year engaged 6,000,000 eggs and this year is buying 10,000,000.

After hatching, the young trout, feeding on the yolk sac, lie nearly dormant at the bottom of the pools for forty days. Then they rise and head upstream in search of food, each tiny fish with the big swelling of the egg attached to his stomach. Their first meals consist of finely ground liver, shrimp meal and dried buttermilk. They are fed every two hours. As their size increases they are moved to larger pens and at two years they are ready for sale or for liberation in the main ponds. In 1930 Mr. Rowe had more than half a million trout and it is a most interesting sight to see them fed. Five times a day the men go around with big pails of food, throwing it into the water. The fish seem to know when it is mealtime and congregate at the feeding platforms, scrambling wildly.

Eighteen barrels of sheep pluck, thirty one-hundred pound bags of sardine herring, and large amounts of certain meat products, all put through a huge electric grinding mill, are consumed every week by this enormous family. Ten men are kept busy feeding them and cleaning out the pens. The sand bottoms of these have to be cleaned every other day and the plank sides rubbed off once a week. The keepers are ever on the watch for dead fish in order to remove them immediately.

Constant vigilance is necessary to protect the trout from the army of enemy wildings that lurk in the surrounding woods and marshes. Loons, sheldrakes, herons, kingfishers, mink and muskrats are always waiting for prey. Mr. Rowe has hit upon a clever way of dealing with that handsome blue thief, the kingfisher. All along the pools he has set posts as if to provide a convenient roost on which the knave may enjoy his stolen dinner, and when Mr. Kingfisher

alights to digest his prey, his feet are caught in the jaws of a neat little trap and he never goes fishing again.

Men with guns are always on the lookout for the great blue heron as he stands motionless in the shallow water waiting for his victim. Occasionally one is taken in a trap and Mr. Rowe says that he has seen one at such a time disgorge between forty and fifty trout.

Muskrats are plentiful and while they do not eat the trout they delight in gnawing through the plank walls of the pens and letting them out. Then too, the mischievous mink who is as much at home in the water as the square tails themselves, is ever watching for an opportunity to dive silently into some remote corner of the pond to pounce upon an especially tempting fish. So everywhere traps are set to take him captive. As he is a creature of boundless resource, a trap, to get and hold him, must be strong and cunningly placed.

In compensation for the loss and annoyance caused by the depredations of the birds and animals, Mr. Rowe has found genuine pleasure and satisfaction in studying the rich plant life of the marshes and hillsides surrounding the hatcheries. He has made up a list of orchids which includes a number of rare varieties. Watching the bladderwort and the curious pitcher-plant at their carnivorous work of capturing and digesting any small insect unfor-

tunate enough to come their way has afforded him many diverting hours, while the finding in mid-October of the uncommon blue fringed gentian has been an event to set the day apart.

Mr. Rowe has learned from experience how to cope with every piscatorial enemy, from the least parasite to the great horned owl, and has so successfully protected his fish from them that he is not only able to supply clubs and private

estates all over the country with trout for stocking purposes but is able to furnish certain New York hotels with fish for the table. The demand always exceeds the supply for the latter. For stocking, the prices range according to size—from five dollars a thousand for the fry just large enough to feed to \$420 a thousand for trout ten inches long. Larger fish are sold by the pound.

Delivery of shipments is made by truck, although sometimes other methods of transportation have to be used in order to get the fish to their destination. For instance, live trout to be delivered in Ontario were placed in large cans of



*Above:* Part of the trout pens at Shy Beaver Pond, on the Clear Springs Hatchery, where more than a million brook and rainbow trout are kept in the ponds and pens to be sold for restocking.

*Below:* This is the outlet of Shy Beaver Pond on this down East trout farm, and shows the construction of the trout pools. In the oval inset is shown the process of stripping a trout for eggs. A fish weighing one pound usually yields about 1,200 eggs.

water, taken 635 miles by motor, thirty miles by train, then by tote team to a lake where they were placed aboard a boat. At the other side of the lake they were removed from the cans, put into water-tight knapsacks and carried over a mountain. Due to the hardness of the stock and to the care

in handling very few of the trout were affected by the long trip. In delivering the trout for the President's favorite streams in Virginia transportation was arranged by the Bureau of Fisheries, a government car making three trips from Maine to Virginia.

## The Fountain Tree

By ROBERT SPARKS WALKER

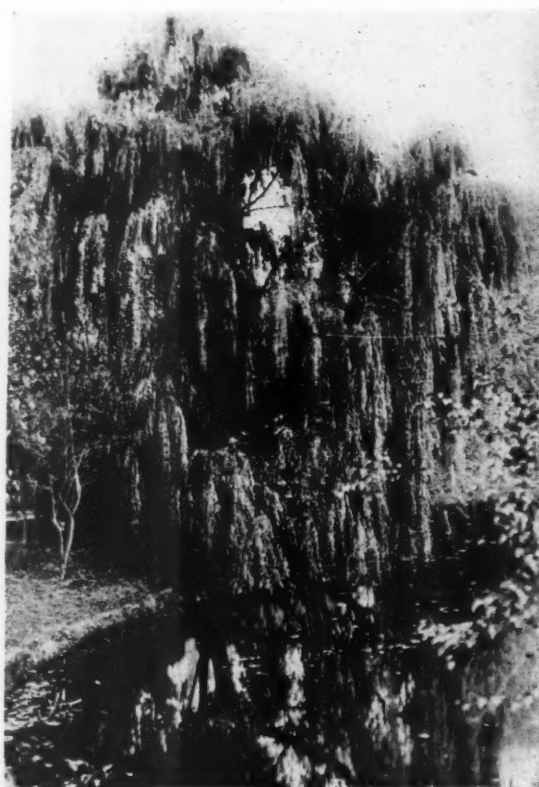
**T**HERE is a wonderfully beautiful tree with drooping branches which has been looked on long enough with a superstitious eye. This tree unfortunately bears the name of "weeping" willow. It has been my experience to find as much superstition associated with this tree as there was two decades ago. School children will avoid it, and even some adults will not permit a tree of this kind set out on the premises because "superstition says" that it will bring death or some other woeful reward. Boys and girls come to my lawn in great numbers to play. When I planted a tree that is called the weeping willow on the south side of my premises, some of the children refused to come any more for fear the tree should bring them death. Just last year, in planting one of these trees out on the lawn, a lady of education who occupied the house disapproved of the idea, because she associated the thoughts of "weeping" with death. When I told her the story of the fountain tree her superstition gave way to deep admiration for this lovely tree.

Of the many peoples who have come and gone in the history of the world, few have existed who were not lovers of some phase of nature. Man by his nature is merciful. A merciful being weeps and sometimes very often. Finding such a charm in nature and believing that all nature—plants, flowers, insects, and the heavens—are creatures of God's own hand, man naturally sought some evidence of sorrow in the trees and flowers about him. It was almost a vain search. Verdant nature does not weep. Throughout she pulsates with the vibrations of cheerfulness. But a tree found growing near springs, brooks, or fountains, by its drooping habit, was said to weep. It was a willow tree, and those who were eagerly seeking named it the

"weeping" willow. Hence the weeping willow today is falsely accused of being a sorrowful member of the vegetable kingdom.

But we must open our hearts and minds to a more reason-

able story. In nature there is much mimicry. Seed pods will mimic an air ship for the perpetuity of its species, and the water hyacinth constructs an inflated gas bag to perpetuate itself and its species. When this species of willow was created, its close association with fountains and running brooks caused it to grow like them. So the willows eventually mimicked the flowing fountain, and even now a near or distant view of this fountain tree bears a close resemblance to a flowing fountain. But what advantage comes from this almost perfect imitation? There is always a valid reason for a peculiarity and oddity like this in nature. In many countries, years ago, thousands of people perished for drink. Nature enlisted in its service a willow, whose presence always proclaimed drink—a flowing fountain. This willing servant answered nature's call and reared its green boughs high above the water, and so successfully mimicked the fountain that the traveler panting for thirst could spy its form in the distance and, by following it, be led to water. So the "Fountain Tree" should be this tree's real name. This beautiful tree has never wept, and its old



THE "FOUNTAIN TREE"

Away with superstition! Why continue to stigmatize such a beautiful tree as a "weeping" willow? Surely its own reflection in the water is a constant source of joy to itself as it is to all beholders.

name is a misnomer. The best way to forever allay the superstitions associated with the willow is to forever change its name. When this is done, and the story of its habit of mimicry is known, men, women and children will let it become a favorite tree, instead of one to be shunned and not permitted growing space.

All hail the Fountain Tree!





## EDITORIALS

### Radio and Fire

IT IS doubtful if any subject holds more interest for the general run of people than that of radio. Certainly it is true that its use in the exploits of the world, whether they be commerce or venture, has eliminated to a sane degree some of the hazards of conquest. It has routed ignorance, bringing races and creeds to speak a common tongue; it has salvaged lives and cargo from the fury of the elements; it has pioneered an era of speed, of unparalleled deeds; it has become a powerful instrument for the protection of society from crime. Yet there are some fields in which its introduction has been slow and its adjustment complex. High in this list is its use in forest fire control.

Since 1927 the United States Forest Service has been experimenting with its use in its plan of fire protection in the National Forests. Canada has been at it much longer, with such preliminary success that in Ontario an observer from the cockpit of an airplane reports the discovery of fires and directs ground forces in their suppression through the medium of radio phones. To one familiar with the demands of any good plan of fire control this stage of development at once offers two essentials—speed and accuracy. But in the United States this peak has not been reached. The best the Forest Service can report for its four years of experimenting is—still experimenting. A small transmitter and receiver set weighing seventy-nine pounds and designed chiefly for a radius of twenty-five miles has been conceived. In a test operation on the fire line it proved worthy, but it also proved that unless the scope and rate of the experiments

are extended many thousands of acres of forest land which under radio protection might be safe will remain subject to a high fire hazard, with a possible economic and social loss that would many times pay the cost of perfecting, installing and maintaining a radio control system in all of the National Forests.

This does not mean that the Forest Service should be condemned. With neither appropriations nor personnel, and under the direction of a "forest inspector," these experiments have progressed, working out such perplexing questions as how much radio energy green timber will stand, the traffic saturation point for central stations, and the effect of "shadows" in the mountains. It is worthy, but with the miracles of radio in other fields ever in mind, particularly in private industry, we wonder that the government has not explored to the limit the possibilities of the radio in forest protection.

If radio can advance the system of forest-fire protection in America, why should there be a delay in its development? Why should the national government charge its foresters instead of its brilliant corps of radio engineers with the problem of radio development? If radio on the fire line—or any other means, for that matter—can help eliminate the fire hazard and thereby eliminate the terrific waste of a burning forest, if it can help restore our vanishing wild life, if it can defeat soil erosion and floods, if it can maintain a good water supply and insure health and recreation—and the conquering of forest fires will do this—then why not radio—and now?

### Looking at Trees

TOO many people look at trees without seeing them. Their lives have been fashioned to accept tree influences and values as a part of a world in which they have been placed—a part of the scheme of creation. They let it go at that, arousing only to protest when these influences and values are curtailed. To them the snugness of their home, the comfort of their furniture are paid for with dollars they earn; the cool, clear water they drink is provided by the city fathers; shade-flecked avenues and invigorating woodland highways are creations of obliging engineers. They never see the root of it all, the trees.

Perhaps a careful reading of Ralph F. Mocine's article "Freemont's Trees of the Desert," appearing elsewhere in this issue, will help people to look straighter and deeper and see more of the tree. Mr. Mocine recounts how the trail-blazers of America, strong men of action with little concern

for the esthetic aspect of the landscape, conquered the Southwest by "looking at trees" and seeing them. There were no dollars, no city fathers, no obliging engineers in the land north of the Rio Grande to see for them, so the trail-blazers watched the horizon. Trees meant life to them and they knew it.

There is no need, in most of the country, for the present-day brother of the trail-blazer to watch the horizon for trees. Gold and builders have followed these early voyagers and speed and convenience have softened the trail. But the need for "looking at trees" and seeing them as springs of energy, of life, is mounting in importance. When we look at trees and behold their sublime features we are reinvigorated and uplifted. But when we "see" them we know they are life's greatest source of riches and happiness. And man, ever in pursuit of both, will not destroy the source.



# The Smartest Thing My Dog Ever Did

## PART II

By JAMES HAY, JR.

WHENEVER THE OWNERS OF DOGS FOREGATHER, THE CONVERSATION INEVITABLY COMES TO THE POINT WHERE SOMEBODY SLIDES FORWARD TO THE EDGE OF HIS CHAIR AND ENTHUSIASTICALLY BEGINS WITH THE ANCIENT BOAST, "THE SMARTEST THING MY DOG EVER DID—"

HAVING HEARD THESE REMARKS COUNTLESS TIMES, MR. HAY, A DOG LOVER HIMSELF, SET OUT SEVERAL MONTHS AGO TO COLLECT FROM WELL-KNOWN MEN AND WOMEN STORIES OF THE SMARTEST THINGS THEIR DOGS HAD DONE. HE WANTED TO FIND OUT JUST HOW CLEVER DOGS ARE—NOT "TRICK" DOGS THAT HAD BEEN EXPERTLY TRAINED TO DO CIRCUS STUNTS, BUT THE GENERAL RUN OF DOGS.

THESE STORIES, OF WHICH THIS IS THE SECOND, ARE BEING RETOLD IN *AMERICAN FORESTS*—A SERIES OF SIX ASTONISHING INCIDENTS WHICH TEND TO SHOW HOW EVEN MORE MARVELOUSLY THAN THE HUMAN MIND A DOG'S INSTINCT, BRAIN OR REASON SOMETIMES FUNCTIONS.—EDITOR.

**H**ORACE M. ALBRIGHT, Director of the National Park Service, had charge of Yellowstone National Park, the largest of the nation's national playgrounds, for about ten years before coming to his present position and served in that capacity longer than any of his predecessors. "The smartest thing I ever saw in dogdom," he told me one day, "was the work of the dogs at the buffalo ranch in the Yellowstone and especially the smallest of the outfit.

When I took charge of the park in 1919, we had a herd of about seven hundred wild buffalo which wintered at will in the summer over an area of several hundred square miles. During the winter the herd was brought down to the low country around the buffalo ranch in the Lamar Valley and confined to a much smaller territory. Both during the winter and summer these animals had to be herded and on special occasions when we put on a buffalo stampede or round-up the things which most thrilled the spectators were the horsemanship and the work of the buffalo dogs. The herd now numbers almost twelve hundred.

"My chief buffalo keeper, Bob Lacombe, was an old-timer and had spent many years of his life in the service of Uncle Sam. He was in the pack outfit of the quartermaster department for years and saw plenty of action, especially in the Philippines. Bob was a lover of animals and never have I seen anyone become more attached to dogs and horses.

"When I came into the park Bob had two shepherd dogs, 'Spike' and 'Bunch,' as his aides in rounding up and caring for the buffalo herd. Both of these animals had learned to ignore the wild game of the park unless given their com-

mands by their master. They were a great team but in 1923, when Bob fell heir to a small thirty-five pound shepherd dog he forgot most of the others he ever owned. This little fellow

was a lemon color but had a white tip at the end of his tail and on account of this particular marking he was dubbed 'Tip.' Tip was three years old when he was given to Bob, absolutely fearless, as his early days had been spent working with cattle.

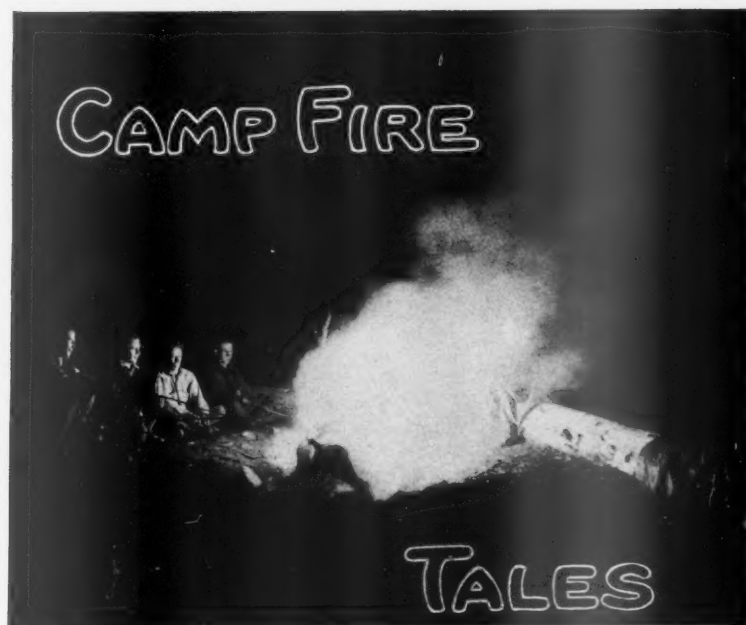
"When I was out in the park last summer and visited the buffalo ranch my first inquiries were for Bob's horse, Eagle, and Tip. 'Tip's gone to the happy hunting ground,' Bob said, and I could notice a certain something in his voice when he spoke.

"There was the best heeler in the world," Bob said. 'I don't ever expect to see his equal. You remember how he used to handle those big critters weighing over two thousand pounds. When I first got Tip I had to break him to handle buffalo, as I had to do with all the rest of the dogs I used on the ranch, and he was quickest of all to learn. I tied him to a long rope and when I would yell "take 'em" he was off like a shot out of a

gun and would run until the end of the rope would bring him to a sudden halt. I always managed to yell "hold 'em" about the time the rope snapped him back and it was after but a few of these experiences that he knew that "hold 'em" meant to stop. These were (Continuing on page 556)



Chief Buffalo Keeper Bob Lacombe, with his favorite dog "Tip"—the dog Horace Albright tells about.



### TRUE STORIES OF THE OUTDOORS

STRANGER THAN FICTION, INDEED, ARE THE STORIES TOLD BY THE MEN WHO WORK OR PLAY BEYOND THE REACHES OF CIVILIZATION, WHEN THEY GATHER AROUND THE EVENING CAMP FIRE. THESE TALES, TRUE ADVENTURES ALL, AND TOLD BY MEN WHO ARE STILL PIONEERING, WILL APPEAR FROM TIME TO TIME IN "AMERICAN FORESTS".

## THE BALKY PACK HORSE

By JOHN F. PRESTON

**N**EAR the northeast corner of the Yellowstone National Park, partly in the Beartooth and partly in the Absaroka National Forest, is an exceedingly rough bit of high country. The peaks stick up above timberline; the main backbone is a ragged plateau, dotted with numerous lakes set in a fringe of coniferous timber, with broad stretches of rocky grassland in between. The peaks so arrange themselves that travel in anything like a direct course is impossible; a circuitous winding path up and down the ridges and through the passes must be followed by the traveler. In the summer of 1909, when the incidents of this story occurred, there were no established trails and it was necessary to pick a way wherever a horse could manage his footing and make the grade.

It was my duty and pleasure to travel in this country for the purpose of learning the extent and character of the sheep range available. With me were Forest Ranger Charley Jordan, Range Inspector Wallace Perrine, and my father-in-law—four saddle horses and two pack horses. Both pack horses were furnished by the ranger—one a tried and proven pack animal, the other which we called "Duke," a new acquisition. He came well recommended, a rusty black animal weighing about one thousand pounds, able to carry a much heavier load than we demanded of him.

My father-in-law had come out from the East and wanted to get back into a country where no white man had ever been before. I thought this section of Montana came as near meeting those specifications as any within its borders. He was then a man well past fifty and had not been on a horse for ten years. I was somewhat worried at first lest the strain

of mountain travel prove too much for him, but he seemed to enjoy every minute of the trip. Occasionally we stopped at one camp several days which gave him a chance to recuperate.

One such camp was made at a beautiful spot on the shore of one of a group of lakes at the head of Wounded Man Creek. Our travels up to this time had not presented any difficulties. We came on a gradual rise up the West Branch of the Stillwater, following the route traversed by sheep in going to their summer range. A gradual climb at the head of the stream had brought us out onto the main plateau where we had stayed for nearly a week. We had not, therefore, put our animals, either saddle or pack, to any severe test and everything had moved along as it was supposed to in any well-organized forest ranger's expedition.

On this day, however, when we moved out of the basin on Wounded Man Creek and started west, we suspected that the going might be a little rough. No one in our party had ever been over the route before. We made a short stop for lunch and pushed on. We were following a stream which was dropping fast and the mountains to the south were too high and rugged to attempt to force our way through. We traveled most of the day westerly, not very fast but very comfortably except that we were uneasy because no break appeared in the mountains to the south.

Not until four o'clock did it seem possible to climb the ridge and take a southerly course. This possible route was along the side of a high ridge through an old burn. The footing for the horses was fairly good so up we went "side slabbing" the mountain and switchbacking to ease the grade.



Black clouds covered the sky by this time and the wind whistled through the dead trees. Our prospects did not look very good and I was decidedly nervous. The approaching storm would bring darkness earlier than usual and might force us to camp where the chances for wood, water and grass were unfavorable. If we did not get off that mountain side and out of the burned timber before the storm broke, our situation might become dangerous.

We were straining every nerve to reach the summit. The whistling and moaning of the wind, the swaying trees and the threatening sky made both horse and man uneasy. At a point about two-thirds the distance up the slope our route forced a sharp climb for a few yards to keep well above a large rock outcrop. Charley Jordan led one pack horse and I brought up the rear, leading Duke. So far Duke had evinced no objectionable attributes and we were wholly unprepared for what happened. Perhaps it was the tenseness of the situation rather than pure "cussedness," but nevertheless, the result was the same.

Duke refused absolutely to take the steep grade over the rock. He pulled back, sat down on his haunches, and the next moment flopped end over end down the mountain side. He made two or three complete somersaults and lodged against a tree. Naturally the caravan stopped and watched these strange acrobatic performances with mingled feelings of anger, extreme exasperation and amusement. We thought Duke would be a dead horse when we reached him.

Charley Jordan, feeling very much responsible for the actions of his horse, began to cuss him in the most approved style. Perrine saw the funny side of it and began to laugh in his peculiar low chuckle that proved more contagious than Jordan's vindictive spirit. Three of us dismounted and made our way to the helpless Duke. Much to our surprise after removing the load, the horse stood up, scratched and bruised but apparently whole. We lost no time in putting the load on him again, and with one man leading and another behind with a big club we were determined to force him to carry his load up the mountain. He walked along nicely until he again reached the sharp pitch over the rock. In spite of all we could do, by means of violence of words and actions, the horse repeated the performance of a few moments before—sat down and rolled end over end down the mountain.

It was no longer a laughing matter and Charley Jordan had his way this time. It would never do to repeat what was said on that mountain in the growing darkness with the wild moaning of the wind in the skeleton trees. It was no

time to experiment further. We decided to pack the load up the mountain on our saddle horses, leave Duke where he lay and, if not already dead, put a bullet through his head. We had not the least doubt that he would be dead this time or badly crippled, for surely no beast would be so fortunate as to survive a second tumble such as that.

But again Duke surprised us by getting up and standing firmly on all four legs. We needed him as a pack animal and decided to spare his life for the present. Up that mountain we went—three loaded saddle horses, three men walking and one of us leading Duke with nothing on him except an empty pack saddle. Dad was the only one who rode to the top of the ridge. It was a relief to reach the crest and

find comparatively level country and green timber. We put the load on Duke's back once more, mounted our saddle horses, put on our slickers and were off again. The storm broke just before we finished repacking Duke. Rain came down in torrents and near darkness heavy clouds enveloped the mountains. The top of that ridge was no

place to camp even though we were in desperate need of a suitable place, so we rode on in the black darkness. In an hour, which seemed much longer, we came out into a mountain meadow, and without even discussing the matter dismounted and made camp.

We fell into our regular routine. All hands helped unpack and pitch the tent. Charley Jordan took care of the horses, Perrine rustled wood, Dad cut balsam boughs for the bed and I did the cooking. There wasn't much cooking done on that night, however. We built a fire as close to the tent as we dared and managed to open a few cans and fry a little meat and boil some coffee. We huddled together in the end of the tent and ate our frugal meal as best we could. We were wet and cold and thoroughly miserable. We had managed to keep most of our blankets dry and we lost no time in "turning in." Next morning the sun was shining and we soon forgot our troubles of the day before.

I prepared breakfast while Charley Jordan went to look for the horses which were nowhere in sight. Three of them had been hobbled. He returned in about an hour and reported tracks leading out of the meadow in the direction from which we had come. Jordan and Perrine started on their trail. Late in the afternoon they returned with the horses, which had been trailed all the way back to our former camp on the head of Wounded Man Creek. Those fool animals had retraced their steps down that mountain side—and three of them, including Duke, were hobbled—to a feeding ground made familiar to them by several days stay. Such is the strange and perverse nature of the mountain horse.



In spite of all we could do the horse repeated the performance.





Fred H. Kiser

## Short Lessons in Photography for the Outdoorsman

### ALONG CALIFORNIA'S MISSION TRAIL

Conducted by FRED H. KISER



**E**VEN in early years, before I knew California I enjoyed reading any little bit of print which referred to the "Trail of the Sandaled Franciscans" and the missions along the Pacific coast from San Diego to the bay cities of the Golden Gate. Yet it was three months before I visited a mission, notwithstanding the fact that I would sometimes pass by as many as four or five of them in a days travel. I was in a new golden land—new mountains and valleys, new trees and flowers, new birds and

animals, deserts and new perfume in the air. Being strictly an outdoor lover and outdoor roamer, and having so much loveliness to enjoy, all new to me, it was perfectly natural that I first see and picture the God-given things.

However, there is a background to the "Valley of the Padres" that is extremely fascinating—one that is more than a century old. It is simply a background of pioneer spirit, and pioneering in any line of endeavor always interests me. That is why I enjoyed reading everything I could find pertaining to the missions and their benefactors.

Most of the padres and their neophytes, regardless of their nationality, had the courage, fortitude and patience to carry on under a tremendous handicap the work of building some of the first protective and educational institutions in our western country. Not the monument itself as it stands today

intrigues me, but the "background of long ago" which made it possible.

Lately I have been devoting quite a bit of time in photographing the missions, and while I enjoy the work, I can't say that I am thrilled with the experience. Most of the missions in their present state have lost their picturesque appearance, due to restoration operations. There are thousands of buildings in California just as attractive; yet a ground-glass portrayal of a mission stimulates my "mental camera" to present a series of inspirational pioneer scenes. For instance, when I focus the camera on the Mission of San Juan Capistrano I can visualize a great "canvas" of the past with a winding trail trod by Indian neophytes, composed of men, women and children. Perhaps a hundred or more are in the procession, each bearing a stone from the quarry, located several miles away. These stones were carried in the hands, or high up on the back in nets swung from the head—the children with small ones, men and women with larger ones. Down in the quarry I can hear the clanking of chains, and the yells of persuasion directed to stubborn, slow-moving oxen hitched to a huge boulder, dragging it toward a "carreta" or ox-cart standing up on a bank. Once the massive stone reaches the carreta, men, women and children struggle with the problem of loading it, and finally the burden of transportation rests with the strength of cattle wearing a yoke upon their horns. Slowly but surely the movement of this massive stone is toward the mission, and once there it becomes a part of the foundation for the adobe walls which range from two to seven feet in thickness. From another quarter, possibly five miles distant, part of the working army is bringing in sandstone which will be used as

lintels in the mission building, and as keystones and skew-backs in some of the arches. Small allotments of iron for window bars, railings, hinges, locks, bolts and nails are beginning to arrive on the scene. On a hillside just north of the mission the kilns are perfecting tile for the floors of the corridors, the columns and arches. Pine logs for the beams and sycamore poles for the rafters are also being deposited on the spot, brought from a canyon twenty miles away. The limestone for the mortar is being literally carried in by aching backs of men and women from a rocky point on the ocean several miles away.

A second look "through the lens" discloses the exterior of the building almost complete, and it is easy to imagine hundreds of pairs of hands laying tule on hand-hewn rafters or poles, binding and weaving them together by means of rawhide strips, then plastering the surface for ceilings. Now I can see the building in its finished state. From the outside it is what I would term a building in the rough but beautiful of design. Inside the furnishings are crude to the extreme, but provide comfort and enjoyment to everybody. As a finishing touch the altar and retablo are placed in the sanctuary and a never-ceasing building program of practically nine years is brought to a close.

Now it is time for me to tighten the dark cloth around my head and exclude every particle of sunlight, for interesting detail will soon appear on the ground-glass worthy of close scrutiny. A colorful change is about to take place. My "mind camera" tells me it is the 7th of September, 1806, and

regardless of the solemnity surrounding the duties of seven fathers, each in turn doing his bit in blessing and dedicating the edifice, I sense a feeling of hilarity in the atmosphere. Men, women and children have donned their very best raiment in honor of the completion of a building which represented home, school, church and protection to them.

On the upper portion of my ground-glass I can see people coming from almost every direction to join the happy throng in and around the building. Incoming Spanish padres, apostolic missionaries, college representatives, officers of the royal armies, and many notable white people are making their appearance, most of them making the journey from distant places of California. This is truly a celebration—a colorful fiesta day, or so it seems. On the 8th of September, 1806, a solemn mass was celebrated, after which the work of construction was resumed. Storehouses for provisions and shops for the various craftsmen have been built. Yonder on the east side of the mission, and clustered about the plaza of the pueblo, small adobe houses have been built for the Indians.

Now I throw my head back and away from the ground-glass for a general perspective, and I behold a village humming with the activity of two thousand or more souls. This happy, peaceful, industrious scene is only visualized for a few moments, when it is changed to one of horrible disaster. The roof is swaying back and forth, and the stones are falling from the crevices of the cracked domes in the rear of the church. Pandemonium reigns in the building as



The Wishing Well, in the Sacred Garden, at San Juan Capistrano Mission.





San Juan Capistrano Mission—a beautiful monument to the days of long ago and to those peerless ones, the California padres, who wrested building materials from the very soil, and raised the cross of Christ on the western frontier.

frightened souls try to escape through doors which have been locked tight by the cataclysm. The tower gives way, and huge stones are scattered over the whole length of the town plaza.

The lovely little village was only enjoyed by its inhabitants for the short period of six years when the earthquake of 1812 converted it to a forbidding conglomeration of adobe, stone, tile and handhewn lumber, under which were buried many people. Statistics show that thirty-nine bodies were recovered from the ruins and buried in the cemetery.

Thus far I have related a mental visionary flash of the background pertaining to the mission as it stands today, which came to me while photographing it. It would not be necessary to change anything but the minor details of this Capistrano background and have it apply to almost any one of the other California missions.

The early work of restoring these monuments of progress are full of human interest. In the early sixties an attempt was made to rebuild the walls of Capistrano, but an unexpected rainy season set in and many of them fell in one night. For about thirty-five years mission ruins were considered hopeless; in fact, not until the Landmarks Club founded by Charles Lumis began its careful preservation work were there any signs of interest demonstrated in these historic landmarks. After some actual work had been started, however, other organizations volunteered to do their part in preserving the "markers of the padre trail" so that California

should be no less proud and respectful of its place in history than are Eastern States.

About the time this article appears in print, people all over the nation will be reading of California's Fiesta Year, and naturally the missions will be a major attraction during the gala event. During the month of September, there will be in our midst strangers from all points of the compass, and I hope the background of the Mission Trail will prove as interesting to them as it has to me.

To my photographic friends who expect to make their own pictures of the missions allow me to stress this caution—don't endeavor to register any one mission in its entirety on one film. Take your time and select pretty little bits of the building and grounds. Carefully compose such subjects and wait for a lighting effect which will give depth and perspective. In working at various angles to the building you will have a lot of heavily shaded areas to contend with, and in making exposures with a hand camera at one-twenty-fifth of a second, do not use any smaller stops than F8 or F16 in order that you may produce some detail in your shadows.

Every successful exposure you make of the buildings which reflect the romanitic era in which they were built will prove to be extremely valuable to your collection. They remind us all of the age in life when simplicity was the essence of good taste, and such reminders are a treat for the soul in the present age of strife for envious possessions.

# A FOREST PAGE FOR BOYS AND GIRLS

Conducted by  
WAKELIN MCNEEL



Hunting Moon

But appearances may be deceiving and sounds often misleading. So let us probe a little deeper into its meaning.

Lepidoptera is a Greek word which means overlapping scaled wings. The owner of these wings was once a creeping thing in the dust which by a transformation that baffles human understanding became a shining marvel in the blue—a butterfly. Now the word has lost its dread just as most fear is dispelled with understanding. It is a name that is given an order of insects to which both butterflies and moths belong. Anyone who has handled a butterfly or moth must have noticed a dustlike substance left upon his fingers. These are the scales that cover the wings somewhat as the scales are arranged on the sides of a fish.

There are so many kinds of butterflies and moths that it takes many big books to describe them all. Possibly there are a thousand kinds right in your vicinity. This article will be devoted entirely to ways of catching and preserving some of those we see flitting by in the sunshine, or that flutter about the light at night. Then, with the aid of an insect book, the collector can study the make-up of the specimens and learn their names. Besides, nicely mounted specimens make splendid deco-

**L**EPIDOPTERA is an unpronounceable and unknown word to many boys and girls. It suggests something ominous and mysterious which makes it interesting to look at—but it sounds like a disease. So one naturally wants to pass it by.

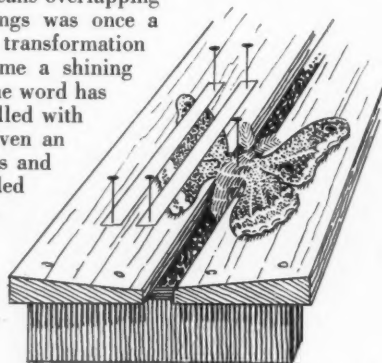
rations for the forestry museum. Color and life may be added to the living room of the home by one or two well-mounted butterflies.

The collector should first make a net. Study the illustration to find out how this can be done. The cloth for the bag may be unbleached scrim or cheesecloth, and the length twice the diameter of the ring. The common size is one foot in diameter and two feet long. This bag is sewed to a band of stout muslin which is either sewed on the ring or is doubled and left open at each end for the insertion of the ring.

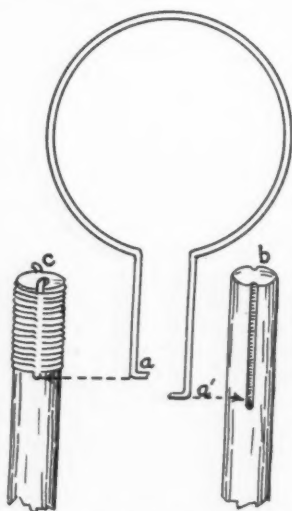
After catching the butterfly or moth, it is necessary to kill it with as little pain to the insect as possible and without damaging the specimen. The best way is by using cyanide vapor. Secure a wide-mouthed bottle, and into it put small lumps of potassium cyanide. Mix a little plaster of Paris with water, and cover the cyanide with about one-fourth inch of the mixture. Leave the bottle open for about an hour to dry, then insert a well-fitting piece of heavy paper over the set plaster of Paris. Cyanide is a deadly poison, and the utmost care must be used in handling

it. Label the bottle "Poison" and keep it closed. Fumes of the cyanide will kill an insect in a few minutes. Specimens should not be allowed to remain in the bottle more than a day because discoloration of the specimen may result.

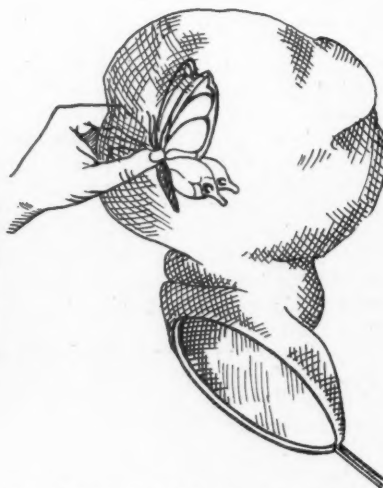
When a butterfly has been caught in the net it is apt to flutter about and thus injure its wings. To prevent



Spreading Board



For the young collector—the home-made net, ring and handle: *a*, *a'*, the ring; *b*, stick showing grooves ending in holes; *c*, wire inserted in groove and hole and wrapped with twine. The butterfly should be quickly and gently pinched at the thorax while still in the net, as shown in the drawing, before being placed in the killing bottle.



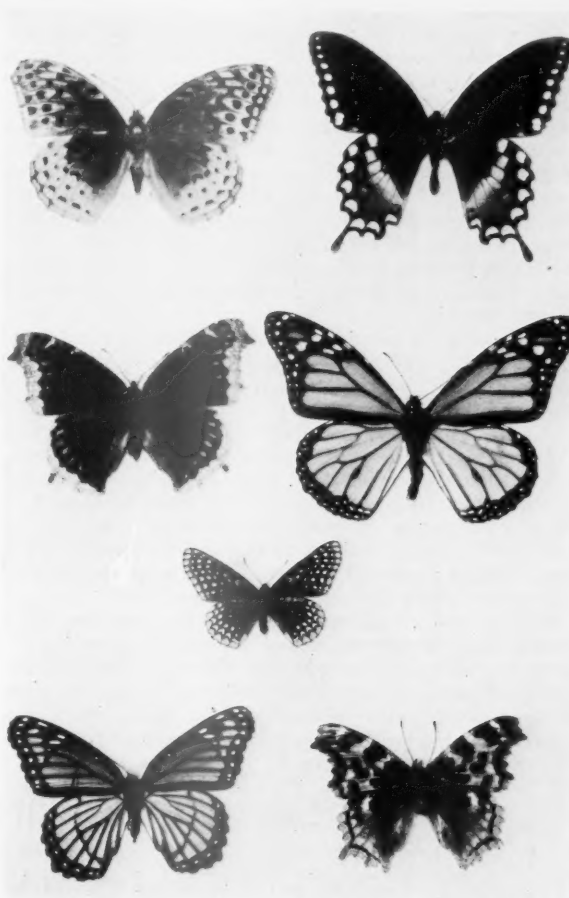
this, take hold of the insect where the wings join the body and gently pinch at the thorax. Then unstop the bottle, insert it into the net, and allow your captive to drop in.

It is well for the beginner to transfer the butterfly from the killing jar to the spreading board quite soon. The spreading or setting board is made of pieces of wood having a groove in the surface to accommodate the body. The wings are spread out with setting needles and strips of paper are drawn over them and securely pinned. Then remove the setting needles. The purpose of the operation is to get the specimen in the position it is to maintain when thoroughly dry. Utmost care must be practiced in using the setting needles not to tear the wings. Most butterflies and moths will dry sufficiently in a week to permit their removal to the exhibit cases.

Exhibit cases may be made of cigar boxes, the bottoms of which are lined with cork or some other soft material into which the pins holding the insects can be easily inserted. The steel pin is thrust through the thorax of the prepared specimen. A mothball or lump of naphthalene should be placed in the box to prevent the entering of predacious insects. Many youthful collectors preserve their specimens in shallow pastboard boxes which are filled smoothly with cotton. The specimens should be placed on the cotton. In the cover is a glass that presses gently over the specimen. If a hook is placed on the



It is easy for any boy or girl who goes carefully about the work, to make just such an interesting collection as this of moths and cocoons.



This is a real picture of an exhibit of butterflies that hangs in the home forest museum of a proud boy's collection.

back the collector may hang his exhibit on the wall. Of course the same precaution must be taken against the ravages of insects by the use of mothballs or naphthalene.

The old adage "practice makes perfect" applies in collecting and preserving insects. There will be failures at the start, but with perseverance and patient efforts at neatness the art of taking and preserving perfect specimens may be acquired. It is always best to preserve a few specimens in perfect condition than many with jagged wings and missing antennae. From some quarters there has come criticism of boys and girls collecting and mounting butterflies. Some look upon it as unnecessary destruction of the beauty in nature; others are of the opinion that it develops a tendency to destroy. This seems a bit far-fetched. In all of my experience in helping boys and girls to collect butterflies I have never known a single case where the knowledge gained through intimate study has not resulted in a greater appreciation and love for these winged beauties. It goes beyond that. It develops a greater interest in things of the outdoors, and the boy or girl who becomes acquainted with nature is always a friend to nature. There is nothing that strikes more strongly the fancy of one who loves nature than a fine collection of properly mounted and labeled butterflies.

"From that creeping thing in the dust  
To this shining bliss in the blue!  
God give me courage to trust  
I can break my chrysalis too."



## A FOREST ENIGMA

(Continued from page 538)

An article in a recent scientific journal attributed the great plains of our western country to continued close grazing over many decades. Close pasturing by countless herds of buffalo for centuries might have accounted for the wide, grassy prairies, but it requires too great a stretch of the imagination to picture herds of deer and elk congregating on the mountain tops in such numbers and for so long a time, away from water, that they brought about this result, while the lower slopes and fertile river bottoms were so lightly grazed that no change took place. The early travelers reported an abundance of game in the mountain country, but never anything remotely approaching the immense herds of bison of the western plains.

Another reason advanced is that there may be some quality in the soil, resulting from the decomposition of the rock masses forming the mountains, that unfitted it to sustain tree life. What this mysterious mineral might be is never named and is hard to guess, for the "balds" occur impartially among the mountains, whether formed of igneous, metamorphic, or sedimentary rocks. All these resulting soils would hardly possess the same harmful qualities. And too, any element so drastically injurious as to prevent all tree growth should most certainly have some ill effect on grass. Yet the grasses in these open parks grow so rank that thousands of sheep and cattle pasture upon them.

Shallow and insufficient soil covering over the rocky framework of the mountains has also been suggested as the cause, but solely by those who have never dug deep into the rich black humus of the "balds" and then paused to reflect on the tree-clad cliffs on the mountain sides, where one wonders that the roots can find any sustenance whatever in the tiny crannies in the rocks.

Cherokee folklore ascribes a supernatural origin to the "balds." It seems that in the ancient days the Indian villages were subject to the incursions of a mythical monster, a *ulagu*, resembling a gigantic hornet, that would swoop down, snatch up a child in its claws and vanish so swiftly that pursuit was impossible.

Every possible method of defense and offense was tried, with no avail. Meantime the raids continued, and the villages were fast being depopulated. At last sentinels were posted on the mountain tops and by this means the *ulagu* was finally traced to its lair, an inaccessible cavern high on a sheer, precipitous mountain side.

While they had found its retreat, the Indians were little better off than before. In their extremity, they gathered together in a great council and implored Divine assistance. The Great Spirit heard their pleas, and sent to their aid the lightning, that at one tremendous stroke split off the whole side of the mountain. When the smoke and dust cleared away, there lay the *ulagu*, dazed but still alive. Quickly the Indians fell upon it with spear and ax, ridding themselves forever of the dread scourge. So pleased was the Great Spirit with their initiative in uncovering its hiding place, their piety in appealing for Divine aid in their extremity, and their bravery in the final combat that it was His decree that in the future the tops of the highest mountains be bare of timber, to better serve as stations for sentinels should such another visitation ever occur.

A fanciful enough explanation of their presence, but it may be that we, at a loss to unearth a better reason, shall finally be forced to accept it as the best solution of the mystery of the existence of the "balds."

## THE SMARTEST THING MY DOG EVER DID

(Continued from page 548)

the only two commands he had to learn, but Tip had the sense of a human and knew just how to go about doing his work with the least effort. Many a time I would go out to round up buffalo with just Spike and Tip and we would bring in four or five hundred. They would work in the timber and I in the open and every once in a while Tip would come running out, sort of cock his head to one side to see how I was getting along, and then dash back to round up another bunch of stragglers.

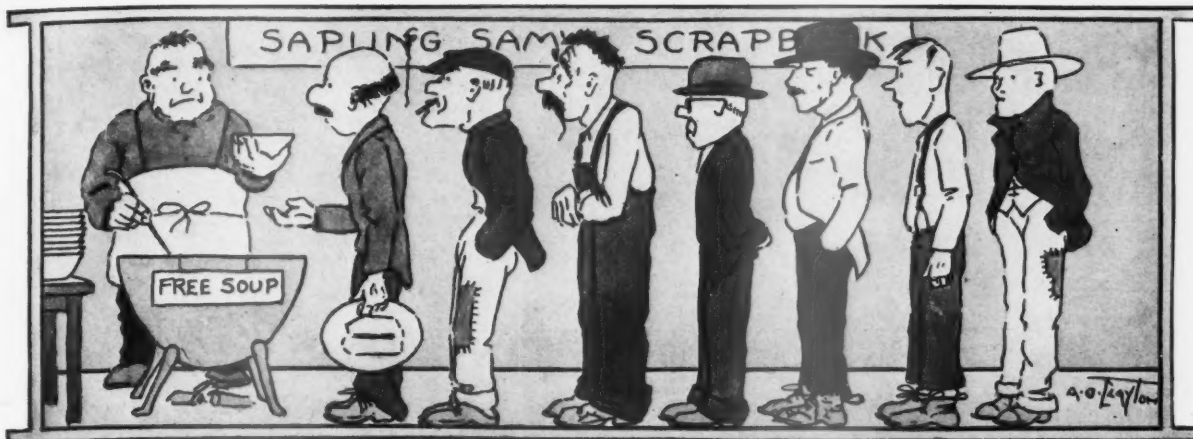
"He had real personality when it came to heeling the big brutes. He would first grab the right foot of the animal and when this foot came back to kick him away he was on the other side taking a nip at the left one. He never missed, and the various individuals in the herd came to respect him. When they saw him heading their way they knew he meant business and it wasn't nearly so hard for him to bring them in as it was for some of the other dogs.

"All he wanted by way of reward was a kind word and a pat on the head. He accepted that attention with infinite joy, his eyes shining, his tail wagging. Often he would lick my hand or, lying down at my feet, rest his head on my shoe. It is absolutely amazing what a dog will do, how implicitly he will obey and how he will endanger his very life, just to win a word of approval or a gesture of affection from the master he loves. Never once did I speak harshly to Tip, or beat him, for long since I had learned that kindness will win any dumb animal.

"One day Tip was playing around the horses in the corral and, caught unawares, one of my mares kicked him and broke his shoulder. I took the injured animal into the house and bandaged him up and made a splint for his leg. The splint did not quite touch the ground and he was able to use the foot some but he had to content himself with sitting on the side lines and watching the other dogs handle the herd.

His shoulder knitted beautifully and within three weeks I was able to remove the splint. It was interesting to observe what a splendid patient this dumb animal was. He favored the damaged shoulder in everything he did and never once did he try to tear off the bandage.

"He had the run of the house and his hangout was in the living room. One of the tricks he learned was to lie down with the least pain and without disturbing the splint. He would lean against the wall with his good side, stretch his injured limb straight out, and slide down until he was in a lying posture. After I took the splint off he was ready to go back to work but it was noticeable that he wasn't the heeler of old although he had lost none of his combativeness. Rheumatism slowly set in and a well directed kick by a buffalo dislodged most of his teeth. His legs gradually failed him and each morning I would have to lift him up to his feet as he was not strong enough to make the grade himself. He would follow me out in the yard and around the barn and when we were ready to go out to the herd you could notice him straining every muscle to arouse enough strength to join in the work. As he grew worse his face took on a white appearance and he seemed to grow old like a human. I never saw a more pitiful expression in my life. He found it difficult to eat anything, with most of his teeth out, and each day I thought would be his last, but his determination helped him to hold off the grim reaper a little longer. Finally I couldn't stand any longer to see him suffer and I had one of the men come out and chloroform him. I've killed humans and lots of animals in my days, and I've gone through hell in the Philippines and while packing for the Army, but I just couldn't muster enough courage to take the life from that poor suffering creature. If there's a dog heaven, Tip's gone there, and from his actions on earth he must be filling the seat of honor."



#### See America First

"How was the scenery on your trip?"  
"It ran largely to tooth paste and smoking tobacco."—Louisville Courier-Journal.

#### Maybe It's Just Bait

Federal Department of Fisheries is going to investigate the shrimp. Glad to see some government bureau take an interest in the taxpayers.—New York Evening Journal.

#### Ruling Passion

"Speaking of animals remembering," said the tall, elderly man, "when I was a boy I once gave a circus elephant a stick of striped candy."

"Well?"

"After that, whenever that circus was to parade in the town, the barbers had to take in their striped poles."—Boston Transcript.

#### Explained

A virgin forest is a forest in which the hand of man has never set foot.—S. S.

#### Blues

A noted international Nimrod reports seeing pinkish bears in the Himalayas. Heck! That's nothing. Look at the blue ones you can see these days, without going any farther than Wall Street.—Boston Herald.

#### There Is Always a Limit

She was looking over a silver fox farm, and one unusually beautiful specimen caught her attention.  
"Oh," she cried, "isn't he beautiful! How many times can a fox be skinned for his fur!"

"Three times, madam," replied the guide gravely. "Any more than that would spoil its temper."—The Anthracite Forest Protector.

#### Flowerly

If rubber gets much cheaper, Edison will be inventing a way to turn it into goldenrod.—Tacoma Ledger.

#### From the Ground Up

Dr. Shapley, Harvard astronomer, we read, spends his spare time studying ants. Life is just one big picnic to some people.—Judge.

#### Bzzz—zz

Mrs. Mosquito: "Where is your daughter?"  
Mrs. Housefly: "She just went to the front door for a screen test."—S. S.

#### Economy First

Visitor: "Where's the other windmill gone to?"  
Native: "We only had wind enough for one, so we took the other one down."—New Goblin.

#### All Wrong

A party at the Zoological Gardens stood puzzled before a bird.  
"It's a heagle," said one.

"It's not," said another, "it's a howl."

They appealed to a bystander.

"Both wrong," he said shortly, "it's a nawk."—Tit-Bits.

#### Rugged Expression

Guide: "Why don't you shoot at that tiger?"

Timid soul: "Er—er, he didn't have the right kind of expression on his face for a rug."—The Kablegram.

#### An Invitation to Anglers

It is said that black bass are so big in Texas they swallow the jack rabbits that try to swim the streams. Bring a

few of those bass down for bait and catch some real bass in Florida.—Florida Times-Union.

#### Truthful

Milt Fall had been fishing, but with bad luck. On his way home he entered a fish market and said to the dealer, "Harry, stand over there and throw me five of the biggest of those trout."

"Throw 'em? What for?" asked the dealer in amazement.

"I want to tell the family I caught 'em. I may be a poor fisherman, but I'm no liar."—Southern Lumber Journal.

#### Distinguishing Mark

Jimmy: "Oh, look at the rhinoceros."

Willie: "That ain't no rhinoceros, that's a hippopotamus. Can't you see it ain't got no radiator cap?"—The Kablegram.

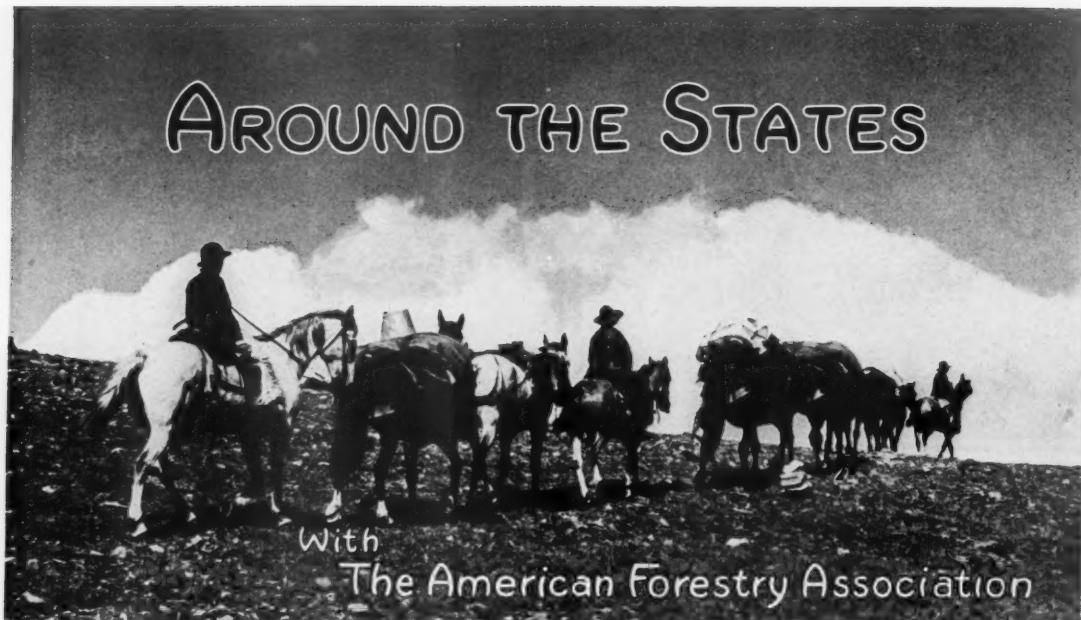
#### Safety

The only place where it is safe to shoot first and inquire afterward is in a crap game.—Dallas News.



"Good grief, Harry! Don't those humans realize we haven't got a fire department!!"

# AROUND THE STATES



## Conservation Crisis Seen in Texas

The State of Texas is confronted by a "grave crisis" in the conservation of its natural resources, according to Governor Ross S. Sterling in a recent message to the state legislature.

Thousands of people are going bankrupt as a result of the demoralization of the oil industry, he said, and hundreds of thousands are feeling the effects indirectly, while the state itself is losing millions of dollars annually in reduced tax receipts.

Governor Sterling said that existing laws are inadequate to carry out the conservation clause of the state constitution. The legislative program, he said, should "include the conservation of all mineral resources, of the soil and of the waters of Texas."

"The soil," he continued, "is the basic natural resource of the state, and it is being depleted so rapidly that unless remedial steps are taken the heirs to our agricultural lands a few generations hence will find them a wornout, unproductive legacy. Such already has proved the case in other states where the lands have been cultivated longer, without adequate attention to conservation."

## Reduced Waterfowl Kill Foreseen

Severe limitation of the number of waterfowl to be killed the coming season may be necessary as a result of long-continued drought in nesting areas of the United States and Canada, officials of the Bureau of Biological Survey indicate, after considering reports of bureau representatives recently returned from expeditions to northern areas of the United States and in company with Canadian officials to the principal duck-breeding areas in Canada. Although federal regulations governing the shooting of ducks and geese were recently amended to reduce the open season

throughout the United States by two weeks this fall and winter, still further restriction of the annual kill may be necessary, the officials stated.

The Biological Survey investigators brought back discouraging reports of unprecedented drought, of lakes and ponds and marshes turned into dusty barrens with no sign of

of the Peace and Athabaska Rivers. In tours of several thousand miles the investigators saw only a few dozen small broods of young ducks in an area that in normal years has produced many millions of mallards, pintails, redheads, canvasbacks, bluebills, and teal.

The shallow prairie sloughs and lakes of the region have disappeared following about

ten years of reduced rainfall and three seasons of persistent drought, Biological Survey officials explained, and a far-reaching inquiry sent out by the Canadian Government has failed so far to show that the ducks have found other more remote breeding areas. Not all the ducks and geese that come into the United States are bred in the region surveyed, it was said, but a very large proportion of the wild fowl that make up the great flights know that country as their birthplace, and the shortage of breeding birds and the loss of so many young will have a serious effect upon shooting conditions both in this country and in Canada.

## Tree Values Fixed by Restoration Cost

An award of damages to the Federal Government for losses in a forest fire which spread from private lands to the St. Joe National Forest, in Idaho, recently made by a United States District Court, measured the value of the young trees to the government by the cost of protecting the area until the timber stand

is restored, according to the United States Forest Service.

Damages to the government by the fire which spread from the lands of the Blackwell Lumber Company to the St. Joe National Forest, in August, 1929, were placed at \$9,312.60 by the United States District Court at Coeur d'Alene, where the case was tried June 11 to 19. The sum awarded is held to cover the cost of fight-

## FIRE SITUATION CRITICAL

Drought, extreme heat and strong winds on August 1 had brought the fire-swept acreage in the National Forests this year above the total for all of last year, and large additional areas are burning in northern Idaho as the magazine goes to press. Up to August 1, fires had covered 250,000 acres within the borders of the National Forests, including private lands in the forests. In all of last year only 205,000 acres were burned over.

The extremely bad conditions cover northern Idaho, eastern Washington and most of Montana. Montana is in the grip of the worst drought in its history. Recent extreme heat has been accompanied by very low humidity, at times going as low as four per cent.

The two fires in northern Idaho which are still burning, have required the clearing of 170 miles of fire line. Several lives have been lost, many homes burned and hundreds of cattle and sheep destroyed.

aquatic life. They reported the almost complete absence of water during the breeding period in the great prairie breeding grounds of southwestern Manitoba, southern Saskatchewan as far north as Saskatoon, and Alberta westward to the foothills of the Rocky Mountains and northward to the vicinity of Edmonton. A marked shortage of breeding ducks and young was noted in the great delta region



## HERE ARE HURRY TREES

The new Chinese (or Siberian) Elm (*Ulmus pumila*) is already famous for its quick growth and resistance to disease. Few people know, however, that in the Orient it is clipped into hedges as freely as we use privet in America. Where immediate screening effects are desired no better variety can be used. Beautiful as a single specimen as well, of course.

**Chinese (Siberian) Elm**  
**6 to 8 feet—5 trees for \$7.50**  
(Larger quantities \$135 per 100)  
New England grown, from  
hardy North China seed.



## DAPHNE

### AS A BORDER PLANT

Now in its marvellous second blooming, the dainty Garland Flower is attractive at all times of the year. All it asks is plenty of sunlight. Evergreen, fragrant, covered with flowers in Spring and again in Autumn, low growing—imagine the beauty of a border of Daphne (such as is pictured above) edging your own garden. And now new low prices—healthy clumps 9 to 12 inches high, balled and burlapped:

**\$9 for ten**  
(New England grown and hardy)  
Larger quantities \$75 per 100

## NEW DAWN

### AN EVERBLOOMING CLIMBING ROSE

A miracle has happened to the Van Fleet Climbing Rose—already famous as the best of the hardy climbers. Vigorous, free from disease, producing fragrant shell pink flowers in abundance, equal in size and shape to many ordinary bush roses—but, like all climbers, blooming only in June.

**And now the miracle!**—A sport from this variety that blooms like a hybrid tea—all summer long! This rose is patented and our supply comes from authorized sources. The greatest boon to gardens in years! Absolutely hardy.

2-year budded, field grown  
**\$4.50 for 2, postpaid**  
**\$10.50 for 5, postpaid**

## AND OTHERS

Our price list describes hundreds of attractive trees and shrubs of all kinds and sizes. Copy free on request.

### KELSEY NURSERY SERVICE

Established 1878

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ing the fire on the National Forest, and also to represent the value of young growth destroyed. The case, according to foresters, is notable, inasmuch as it measured the value of the young trees to the government by the cost of protecting the area until the stand is restored. The case is also said to be a test of the merits of the Idaho forest law, enacted in 1924, says the Forest Service.

The government charged general negligence of the Blackwell Company in allowing its fire to spread from its land to the National Forest, special negligence because of failure to pile and burn slash concurrently with cutting of trees along its logging railroad, failure to dispose of slash on horse trails and rollways concurrently with cutting timber at these places, and negligence in operating all oil burning locomotives without a spark arrester. It also charged negligence in violating the provisions of the Idaho forest law of 1925 relative to slash disposal on logging road rights-of-way.

The court upheld as a principle that it was the duty of the government to protect its property when in danger, and that it was in no way obligated to wait until private owners had taken action.

### Aircraft Patrol for Michigan Forests

A contract for the first airplane forest-fire patrol in Michigan has been awarded by the Forest Service, United States Department of Agriculture, to the A. B. C. Airline Corporation, of Lansing, Michigan.

Two planes will be used in the new service, it was explained, one to be stationed at East Tawas for patrolling the Huron National Forest, which covers portions of four counties, and the other, a seaplane, at Munising, to patrol the three National Forests in the Upper Peninsula, namely, the Marquette, Hiawatha and Lake Superior.

Planes of the A. B. C. Airline will be subject to call at all times until November 30. They will be used principally when the visibility is so poor that observations from the fire towers will be impaired, and also when the fires are so extensive that present methods of observation are ineffective.

### Mississippi School Wins Tree-Growing Contest

Leake County Training School, at Walnut Grove, won the annual negro vocational school tree-growing contest sponsored by the Mississippi Forest Service and The American Forestry Association. Other schools obtaining outstanding results are the Mt. Zion Colored Vocational School, Prentiss; Lawrence County Training School, Monticello; Forrest County Training School, Hattiesburg; and Lee Rosenwald School at Sumrall. Thirty-eight schools entered the contest. About 5,000 seedlings are now in the school seed beds waiting to be transplanted to the field next winter.

This is the second year of the contest sponsored to teach students how trees grow and why they cannot survive with forest fire. Union County Training School, which won the contest last year, has surrendered the bronze medal which, after being engraved, will become the property of the Leake County School for a year or until some other school grows better seedlings.

The contest disclosed that black locust seeds first show above the ground in about twelve days. Loblolly pine required about sixteen days and shortleaf pine eighteen days to come through. Students were impressed with the difficulty of getting the seed to grow and realize why nature must be so bountiful with its seed and why forest fires must be prevented if a good stand of young trees is to be obtained.

## Here are Nut Trees



CONSIDER the value of nut trees for reforestation of waste land. They grow on soil too poor for evergreens. Altogether, aside from the pleasure and value of yearly crops of nuts, the wood is extremely valuable as timber—more so than any other class of tree that can be grown. Mass methods of production all over prices which make immediate forest planting practicable now—this Fall.

	(100)	(1000)
American Sweet Chestnut— 2 to 3 feet.....	\$18.00	\$160.00
Butternut ( <i>J. cinerea</i> )— 2 to 3 feet.....	6.00	50.00
American Beech ( <i>Fagus</i> )— 12 to 18 inches.....	4.00	20.00
Pin Oak ( <i>Quercus palustris</i> )— 12 to 18 inches.....	9.00	85.00
Shagbark Hickory ( <i>H. ovata</i> )— 6 to 12 inches.....	8.00	60.00
Hazelnut ( <i>Corylus</i> )— 12 to 18 inches.....	4.00	25.00
Black Walnut ( <i>Juglans nigra</i> )— 12 to 18 inches.....	4.00	30.00

### Nut-tree Offer Number 1

Ten each of all the above varieties—70 trees—nursery-grown seedlings, 12 to 18 inches high, packed for shipment and postpaid **\$9.00**

### Nut-tree Offer Number 2

Three each of all the above—21 trees—2 to 3 feet high, packed for shipment and postpaid **\$10.00**



LESS fruitless talk about "feathered friends" and more sanctuaries—that is what is needed if we are to preserve and increase our treasures of bird life. A group of shrubs bearing attractive fruits and berries is the surest way to bring the birds to your home grounds. We have selected five kinds of shrubs and trees that seem to us best adapted. Plant some this autumn.

	(100)	(1000)
Japanese Barberry— 12 to 15 inches.....	\$6.00	\$30.00
Flowering Dogwood— 18 to 20 inches.....	10.00	50.00
American High-bush Cranberry— 12 to 18 inches.....	10.00	90.00
Spice-bush ( <i>Benzoin</i> )— 12 to 18 inches.....	5.00	40.00
Russian Mulberry— 2 to 3 feet.....	3.00	16.00

### Bird-food Offer Number 1

Ten each of the above five kinds—50 nursery-grown seedlings, 12 to 18 inches high, packed and shipped, postpaid, for **\$8.00**

### Bird-food Offer Number 2

Three each of the above five kinds—15 transplanted shrubs and trees, 2 to 3 feet high, packed and shipped, postpaid, for **\$8.00**

### AND OTHERS

Our price list contains hundreds of different trees and shrubs in similar sizes and in larger. Rare grafted evergreens and flowering trees as well. Write for a copy.

### KELSEY NURSERY SERVICE

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## GOOD NEWS for Travelers

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HARRISBURG, PA. . . . . The Penn-Harris  
ALBANY, N. Y. . . . . The Ten Eyck  
SYRACUSE, N. Y. . . . . The Onondaga  
ROCHESTER, N. Y. . . . . The Seneca  
NIAGARA FALLS, N. Y. . . . . The Niagara  
ERIE, PA. . . . . The Lawrence  
AKRON, OHIO . . . . . The Portage  
FLINT, MICH. . . . . The Durant  
KANSAS CITY, MO. . . . . The President  
TUCSON, ARIZ. . . . . El Conquistador  
SAN FRANCISCO, CAL. . . . . The St. Francis  
SHREVEPORT, LA. . . . . The Washington-Youree  
TORONTO, ONT. . . . . The King Edward  
NIAGARA FALLS, ONT. . . . . The Clifton  
WINDSOR, ONT. . . . . The Prince Edward  
KINGSTON, JAMAICA, B.W.I. The Constant Spring



### Oregon Experimental Forest Established

An area of typical western yellow pine timberland on the Deschutes National Forest, Oregon, has been dedicated to research and demonstration purposes by a recent order of the United States Forest Service. This area will be known as the Pringle Falls Experimental Forest, and will serve as one of the field laboratories for the Pacific Northwest Forest Experiment Station, of which Thornton T. Munger is director. Here will be concentrated much of the research in land-management problems of the central Oregon country. The area affords excellent opportunities to study the best methods of cutting western yellow (ponderosa) pine to get maximum continuous yields, for studying methods of slash disposal, fire control, artificial reforestation, stock grazing, the control of diseases and pests, and the relationships of animal life to forest welfare, says the Service. Already part of the area is under detailed observation by forest entomologists associated with the experiment station to learn more about the habits of the serious insect pests of pine timber.

This newly designated Experimental Forest covers about 7,500 acres, nearly two-thirds of which is of virgin western yellow pine type, a third is lodgepole pine type and the rest old burns and sugar pine type.

The setting aside of this tract is in line with a regulation of the Secretary of Agriculture that authorizes the Regional Foresters to reserve in each major forest type a tract of several thousand acres for research use.

### Assistant Game Officer Appointed

Robert W. Williams, deputy game conservation officer of the United States Biological Survey, has been appointed assistant United States Game Conservation Officer to fill the vacancy in the Division of Game and Bird Conservation caused by the transfer last March of Talbott Denmead to the Bureau of Fisheries, Department of Commerce.

For thirty years Mr. Williams has been actively interested in game conservation and in legislation for the protection of wild life. From 1902 to 1907 he served the Biological Survey in the Washington office as game-law assistant and was author of an important bulletin of the bureau on "Game Commissioners and Wardens—Their Appointment, Powers, and Duties," and of a bureau circular on "Game Protection in Florida." He was graduated from the Northern Indiana Law School.

### National Forests Receipts Drop

Owing chiefly to a decline in sales of timber, receipts from the National Forests decreased \$1,758,679 for the fiscal year ending June 30, 1931, the United States Department of Agriculture has announced. There were small gains in grazing fees for cattle and horses, and in a few other items. The drop in receipts was spread over all the nine National Forest regions of the United States and Alaska.

Total receipts from all sources were \$4,992,873, as against \$6,751,553 last year. Timber sales were \$2,514,806, as against \$4,337,543 last year. Grazing receipts as a whole showed a slight gain, cattle and horse grazing fees amounting to \$1,029,649, as against \$992,304 the year preceding, and fees for sheep and goats to \$918,063, as against \$931,649 the year before.

Special use permits showed a gain of \$1,459, total receipts of \$301,716. Water power fees were \$112,307, with a gain of \$4,814. Timber settlements amounted to more than twice those of last year, reaching a figure of \$68,093. Turpentine sales also increased from \$11,588 to \$17,773. Other items in the year's receipts were: Timber trespass, \$6,698; grazing trespass, \$12,723; occupancy trespass, \$937; fire trespass, \$10,102.

Receipts from the nine regions follow: Northern Rocky Mountain, \$566,348; Rocky Mountain, \$902,262; Southwestern, \$432,521; Intermountain, \$717,672; California, \$1,135,273; North Pacific, \$895,931; Eastern, \$251,666; Alaska, \$51,725; Lake States, \$39,471.

### Farm Forestry Results Increase

Farm boys and girls to the number of over 5,350 carried on forestry activities during 1930 under the leadership of the county agricultural agents and state extension foresters involving 11,297 acres. This included the planting of waste land to forest trees, as well as thinning and protecting young stands of timber.

In addition to the work with young people county agricultural agents report that 5,469 farmers made forest plantings, 6,170 were assisted in managing their farm forest or woodlot, and 3,872 planted farm windbreaks.



Members of the Appalachian Forest Research Council in session at Asheville, North Carolina. The Council was organized in 1925 for the purpose of coordinating forest investigations throughout the Southern Appalachians. It reviews the work of the various investigative agencies in forestry.

## DRIVE ON TO SECURE 2,000 BUSHELS OF NUTS

The campaign to secure 2,000 bushels of nuts from historic grounds this fall has been launched by the sponsors of the National Nut Tree Planting Project. At the headquarters in Washington lists have been compiled for distribution throughout the country of estates that are known to fame because of association with outstanding men or unusual events. It is expected that these lists will not only suggest sources of seeds, but will serve as reminders of other historic grounds that are known locally. During September dispatches will be sent to newspapers and to farm publications announcing the drive for the collection of nuts that will culminate in the nation-wide distribution of seeds in order that millions of nut trees may be added to the country at large.



"Uncle Benny" Clark and Texas Scouts plant nuts from historic grounds. In order to make possible thousands of such planting programs the campaign to collect 2,000 bushels of seeds has been launched.

At the National Scout headquarters in New York historic grounds have been classified on the basis of Councils to enable local groups to locate nut trees and secure permission to gather the seeds as soon as they begin to fall. Each troop will set aside a day to be known as "Nutting Day," when the boys will combine business and old-fashioned pleasure by combing the rustling leaves for nuts for their great conservation program. Experts of the United States Department of Agriculture are making arrangements for the inspection, handling, and

distribution of nuts as soon as they are received.

Through the efforts of the sponsors of the National Nut Tree Planting Project, Boy Scouts of America, the United States Department of Agriculture, American Walnut Manufacturers' Association, and The American Forestry Association nut trees have been planted in most of the states. In addition to the elaborate ceremonies at state capitals there have been programs in school yards, Scout camps, and in other community places. "Uncle Benny" Clark of Cooper, Texas, led the Delta county program whereby seeds from historic grounds were planted in the yards of forty-three schools and several churches. Under his supervision Scouts set out seeds from Arlington, Mount Vernon, and the homes of Admiral Richard E. Byrd and McGavock Grider, famed aviators.

Scouts of Troop 26 of Schenectady, New York, assumed responsibility for the planting of 1,500 walnuts from Tridelfia, Maryland, and Arlington. They set them out in nursery beds and plan to transplant them in parks and on other public property. Through the cooperation of F. B. Trenk, Wisconsin Extension Forester, and Wakelin McNeel, assistant State Club Leader, between four and five hundred seedlings, descendants of trees at Monticello and the home of Admiral Byrd, are growing in the McKay Nursery at Waterloo.

### European Lumber Interests Organize

Lumber interests in Sweden, Finland, Poland, Latvia and Esthonia are reported by officials in the Department of Commerce to have entered into preliminary agreements to meet competition set up by the Russian lumber interests. For several months, lumber manufacturers in Sweden and Finland have been preparing a program to combat the dumping of Soviet lumber on the European market. By the middle of July the continued fall of Swedish-Finnish lumber prices had gone below the Russian schedules in the British market, which has become very unsettled as regards Soviet contracts.

Meanwhile, lumber producing concerns of southeastern Europe have organized the *Union Bois* with headquarters at Basel, Switzerland. They propose to standardize prices, terms of payment and grades of lumber. Charles E. Lyon, commercial attaché at Berne, reports that the association is directly concerned with a program for quota selling, and like the north European group has clearly in mind the existing competition with Soviet interests.

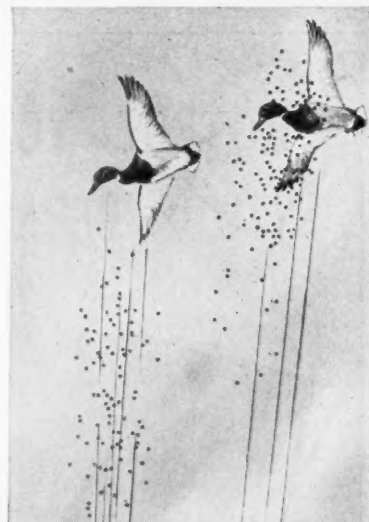
### Conservation Work Cut by Wisconsin

All conservation activities in Wisconsin except forestry will be greatly reduced and approximately fifty men in the law-enforcement, fisheries and state park service will be laid off as a result of a reduction in the budget by the last legislature, it has been announced by the Conservation Commission.

The budget of the Law-Enforcement Division, it was stated, was reduced from a requested \$258,000 to an available \$160,000 for the coming year. The Fisheries Division was cut from \$330,000 to less than \$150,000, and the park budget from \$73,000 to \$30,000. A requested fund of \$12,000 for the Research Bureau was reduced to \$3,000.

The force of game wardens will be reduced from sixty-nine to forty-nine, it was announced. Nine fish hatcheries will be closed and all fish-rescue work in the Mississippi River bottoms will be stopped. At many of the state parks all sanitation activities will be discontinued and the new Copper Falls State Park will practically be closed.

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### St. Lawrence University Establishes Second Demonstration Forest

A second demonstration forest has been established by the Department of Forestry at St. Lawrence University, New York. The tract consists of fifty acres, fifteen acres of which have been planted to white pine and Norway spruce. The purpose of the University in establishing these demonstration forests is for the education of the public. The State College of Forestry at Syracuse University is cooperating with St. Lawrence University.

### Recreation Congress in October

The eighteenth annual Recreation Congress, which this year is to be a joint meeting of the United States and Canada, will be held in Toronto, Ontario, Canada, October 5 to 9, inclusive.

Topics for group discussion will include problems of providing recreation and preserving beauty in parks and forests, winter sports, recreation in small towns and rural districts, and music trends in recreation.

### American Civic Meeting

It has been announced that the fifth traveling annual meeting of the American Civic Association will be held in Michigan from October 5 to 8. The trip will be made from Grosse Pointe into Canada and back to Ann Arbor via Dearborn and Greenfield Village.

### Peebles to Direct Federal Lumber Research

The appointment of Leighton H. Peebles, of New York City, formerly a member of a large exporting and importing firm, as Chief of the Lumber Division of the Bureau of Foreign and Domestic Commerce, Department of Commerce, was recently announced.


Mr. Peebles has had an extensive experience as a construction engineer and administration and business experience in foreign trade over many years. He has knowledge of the lumber trade both from the construction and business point of view, says the Bureau.

He was graduated from Union University, Schenectady, New York, in 1906. During the same year he became associated with an electric company. Later he was connected with one of the four largest engineering construction companies, at first as an electrical inspector and later as a construction engineer, engaged in the building of power stations, electric railroads, distribution systems, transmission lines and other projects.

### Outdoor Extension Course by Radio

A series of radio programs was inaugurated early in July under the Columbia Broadcasting System designed to reach the millions of boys and girls in outdoor camps, and it will continue throughout the summer. This move is being sponsored jointly by the Office of Education in Washington, D. C., the National Education Association, the National Advisory Council on Radio in Education, and the summer extension of the American School of the Air.

Miss Alice Keith, broadcasting director of the American School of the Air, working with the Coordinating Council on Nature Study Activities, will conduct the programs. Dr. Bertha Chapman Cady, formerly of the American Museum of Natural History and well-known naturalist for the National Girl Scouts, will give brief, entertaining talks on the abundant natural interests of outdoor life surrounding these vacationists.



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### Tree Physiology

At a conference at New Haven, Connecticut, to discuss the chemistry and physiology of plants, twenty-five papers ranging in subject matter from virus disease of plants to the growth of white pine were presented. Nine of the papers dealt with various phases of tree physiology and silviculture.

From the laboratory of plant physiology at Yale University, P. A. Harriman gave the current results of an investigation of the chlorophyll contents of red pine leaves. Leaf samples were taken from various exposures in a closed stand and on open-grown trees as well as from leaves of different ages. The quantitative results indicated that the differences in green pigment content of red pine leaves may be explained by differences in the exposure to light. Miss Julia Lee gave the results of an investigation of white pine blight. This physiological malady has increased very appreciably during the past two drought years in southern New England. Field surveys and studies of root conditions were supplemented by microchemical and anatomical work on affected and healthy trees. W. C. Bramble described his studies on the effect of the chestnut blight fungus on the ascent of sap. In the laboratory, the apparatus for measuring the rate at which water is conducted through short lengths of stems was on demonstration. C. G. Deuber showed red and black oak seedlings from acorns stimulated into early germination by means of vapor and solution treatments with ethylene chlorhydrin and thiourea, respectively.

Professor James W. Toumey, of the Yale School of Forestry, gave an address entitled "Plant Science Research in the Yale School of Forestry." J. L. Deen's investigation on the desirability of an early expression of dominance in even-aged, fully stocked stands of northern white pine was read by title. H. I. Baldwin, of the Brown Company research staff, sent an abstract of his recent work on the storage of sugar maple seeds.

In a paper on the physiological effects of certain virus diseases, A. A. Dunlap, of the Connecticut Agricultural Experiment Station, had data on the chemical composition of some fruit trees as influenced by virus diseases. N. Turner, also of the Connecticut Station, gave the results of his investigations on the effects of petroleum oils on plants, including a number of woody horticultural species. E. P. Felt and S. W. Bromley, of the Bartlett Tree Research Laboratory, reported extensive work on the spray tolerance of a large number of shade and ornamental trees.

During the inspection of laboratories and greenhouses a very complete demonstration of the European larch canker investigations under way at the United States Office of Forest Pathology was given by Dr. G. C. Hahn and Dr. Theodore Ayres.

### Michigan Motion Picture Service

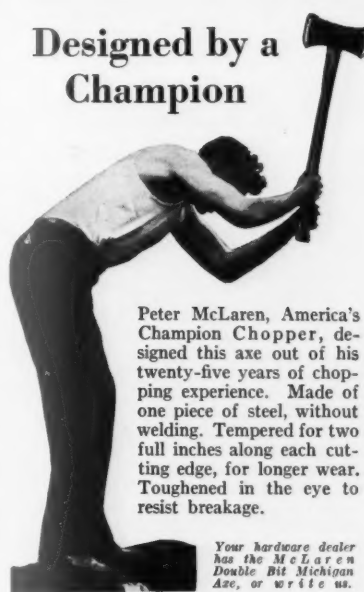
A motion-picture loan service that will make it possible for the pupils in about twenty of the larger school systems in Michigan to learn conservation through visual means will be inaugurated with the opening of the next academic year, the Educational Division of the Michigan Conservation Department has announced.

About fifteen reels of conservation motion pictures, including wild life, forest fires, forestry and kindred subjects, will be loaned to the larger school systems. A few reels will be loaned for two months at a time so that all pupils will have an opportunity to see all of the pictures during the coming school year.

The smaller school systems will obtain conservation pictures for shorter periods through the department's regular film-loan service.

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## IOWA GROVES WRITE HISTORY

"At the close of the Civil War, Great Grandfather Ezekial Porter gathered up his possessions and came from Ohio to Dubuque." Thus begins a story of an Iowa grove by Robert Porter, a farm boy near Waterloo, who now wears an American Forestry Association medal with his name engraved upon it, for he was one of the winners of Iowa's Farm Grove History Contest, conducted by Extension Forester I. T. Bode of the Agricultural Extension Service for the boys and girls of Iowa's 4-H Clubs. Histories and descriptions of ninety-three

valiant struggles abound in the fascinating stories. Robert Porter tells how "in the spring of '65 great grandfather took a lumber wagon and went to the big woods to gather maple seedlings of every size and description. He brought them home and planted them as close together as he could in rows about ten feet apart. The first summer he had trouble keeping enough water around their roots and the next winter the rabbits and field mice gnawed the bark." After the death of his great grandfather, his grandfather stayed on the home



Alvoretta Hunt, winner of The American Forestry Association medal, and Wayne Gutshall, of Dallas County, with the Extension Service shelterbelt exhibit.

groves and farm windbreaks were submitted. In addition to receiving The American Forestry Association medal, Robert Porter and Miss Alvoretta Hunt of Adel, Iowa, who won first place and a similar medal among the girls had all expenses paid to the National 4-H Club Congress in Chicago.

Romance, human interest and records of

place. He received the full benefit of the grove and the orchard in the twenty-five years that he worked it. In this time he cut and used about a "thousand dollars worth of firewood besides innumerable fence posts and tongues for machinery. Grandpa tells of one storm that would have blown the house off the foundation if it hadn't been for the grove. Dad took the farm over about the time the United States went into the World War. From that time to the present he has cut \$900 worth of firewood and many posts." As the grove now stands it contains 550 trees.

Alvoretta Hunt, who won first prize among the girls, tells the story of another Ohio pioneer who "missed the beauty as well as the protection of the Ohio forests." The one winter of 1863 in the new country determined William Jackson to set out a windbreak.

"In the fall of 1864, Mr. Jackson gathered soft maple seeds and walnuts from trees growing near the banks of the South Coon River, three miles from the farm. The next spring he planted these seeds in furrows. Along with them he set out sprouts of hard maple, elm, hackberry, silver poplar, honey locust and three evergreen trees which he had secured from the woods along the river.

"Success brought interest which resulted in adding more trees until a ten-acre woodlot was set out northwest of the farm buildings."

By 1881 the grove was large enough to protect the buildings against an unusually fearful blizzard. One of the neighbors related that the snow drifted until it entirely covered a young orchard and closed all roads leading to the farm.

Quotable passages are not limited to the two prize winning stories, but abound in almost every one of the contributions. Adrian Aitchison, of Cascade, lives in a Scotch community on



"Blow Eerie Farm," so named because of the way the wind whistles around the buildings. He tells of pine trees growing in the front yard which were brought over from Scotland in 1865, and of two rows of evergreen trees planted in 1900 on the north and west of the farm buildings.

Miss Josephine Casey, of Epworth, told of a six-acre grove around their parish church and school which was planted under the leadership of Father McGown in 1876. Among those who helped plant the trees and who still survive are John Kirby, Sr., of Farley, and Tom Kane, of Dubuque, who told her how the growing trees furnished Father McGown with decorations to help in the annual celebration of the feast of Corpus Christi.

"It was in the spring of 1858, seventy-two years ago," writes Miss Bridgetta Daly, of Epworth, "that my great grandfather planted his grove. He got seventy-two evergreens at a nursery in Dubuque. These trees he planted in two long rows from six to eight feet apart along the west and north side of the buildings. Maples, which were gotten in the woods and transplanted are now sixty-eight feet high and some of the oak and walnut trees are sixty feet high."

Commenting on the difficulties of securing and raising the trees, she said the roads were so muddy that heavy loads were impossible and two trips with a team and wagon were necessary to bring the trees from Dubuque. After the trees were planted they had to be watered and the ground around them kept clear of weeds.

Russell Sawyer, of Davenport, tells of Charley Lou, a farmer near Mount Joy who has a veritable arboretum. With the arrival of each of his children he has planted a tree. A pin oak planted forty-one years ago for his son Carl now has a crown spread of seventy-five feet. For his daughter Evelyn he planted a magnolia tree which blooms regularly. Other trees successfully planted by Mr. Lou include the southern cypress, tulip poplar, American sweet chestnut, pecan, sugar pine, eastern white pine, Ginkgo, Japanese butternut and ailanthus.

### Dangers Encountered by Department of Agriculture Workers

Although agriculture is a peaceful industry, many of the men who serve under that Department of the Federal Government in this country have dangerous occupations, according to information just made available from the records of the Department of Agriculture.

Game wardens, foresters, inspectors engaged in enforcing cattle tick eradication and meat and food inspectors are among those Department workers who have faced death in the routine of their daily work. Experience has shown that these men frequently get more action to the minute than many whose occupations are supposedly more dangerous.

In certain parts of the South the dipping of cattle in the war against the tick and Texas fever has provided numerous thrills and several deaths have resulted from the work.

There are accounts of incidents in which some of the cattle owners and their sympathizers stubbornly refused to comply with rules and regulations formulated for the ultimate good of the community and the industry. Dipping vats have been blown up by these cattle owners, some dynamiters have been wounded and one was killed while in the act of destroying a vat.

A county in Arkansas at one time was one of the worst recalcitrants in the tick war, although the eradication work has gone far. It was found that certain men in one community had stopped dipping and the inspectors were letting them have their way and not reporting

the cases. The county authorities were requested to get the needed material and get men to dip the cattle. In a week two of the men had been shot and one was killed. Notices were posted on trees, buildings and fences warning that others who tried dipping enforcement might expect armed resistance.

The county men preferred to quit; then ex-service men were employed and equipped with horses, guns, and camp outfits, for no one in the neighborhood dared to provide food or shelter. The armed men built a new vat to take the place of those dynamited, left guards about it, and then visited every cattle owner telling them to bring their cattle on a certain day to the vat or armed men would come to get them. The result was that all the cattle were brought in and dipped and the ticks were eradicated.

The chances the forest rangers take are with the elements, but none the less real. They fight fires that rush with the wind, they navigate dangerous streams in frail canoes, and they travel at night over uncertain roads.

The means of fighting forest fires is sometimes as dangerous as the destroyer itself. Fast work must be done at night, the felling of trees, sometimes with dynamite. In winter the ranger may not be worried about fire, but he has the deep mountain snows, there are avalanches and blizzards, and usually he is alone. A broken leg under such circumstances is not the small matter it is when help is nearby.

Another class of department workers whose lives often are endangered are the plant explorers, those who comb the out-of-the-way places of the world for new and valuable plants that may add to our comfort or pleasure, and they take life as it is in the jungle or in the desert. One of the men engaged in this work made a report on some of his experiences, in which there appears an account of his cooperation with the natives of a Burmese village in trapping a man-eating tiger. Another plant explorer some years ago was badly beaten by Chinese bandits and later lost his life in a Chinese river.

Sickness and bad food are the greatest dangers encountered by the explorers: fleas, lice, flies and mosquitoes welcome the foreign scientists. One man reported 159 flea bites on his forearms after a night spent in a hammock in a Guatemalan country house.

Hunters of predatory animals in the West also get their share of thrills during their searches for animals. One of the Department's men trailed a grizzly bear in Colorado, with the assistance of his dogs. After trailing the 1,000-pound grizzly for several miles he finally killed it with a shot in the neck just as the grizzly was charging him.

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## Ask the Forester?

Each Month Forestry Questions Submitted to the Association Will Be Answered in This Column. If an Immediate Reply is Desired a Self-Addressed, Stamped Envelope Should Accompany Letter.

QUESTION: Will birds return to the nest after the eggs or young have been disturbed?—A. R. B., Pennsylvania.

ANSWER: W. L. McAtee, of the Biological Survey, says that birds vary in their response to disturbance of the nest, but few will desert on this account after the young are hatched. He says that frequently eggs or young may be replaced in the nest and the brood will come off successfully. Occasionally the parent birds will follow a nest after it has been moved, and continue to care for the young.

QUESTION: How far north does one find snakes?—A. R. B., Pennsylvania.

ANSWER: The common European viper is found as far north as latitude 67° in Scandinavia. The common garter snake is found as far north as 56° in North America, according to the Biological Survey.

QUESTION: Can you give me the definition of a forester, limited to fifty or sixty words?—E. B., New York.

ANSWER: The following definition is largely the work of Herbert A. Smith, of the United States Forest Service. Forester—A forest manager or administrator; a practitioner of the profession of forestry, i. e., the establishment, maintenance and utilization of forests, whether for growing and harvesting crops of wood and other products, for protecting watersheds and regulating streamflow, for recreational use and scenic embellishment, or for other contributions to social and personal welfare; a person engaged in forestry education or research; loosely, anyone employed in caring for or exploiting forests.

QUESTION: Is aspen a close relative of birch?—C. L. H., California.

ANSWER: They belong to the same division of *Dicotyledons*, but to distinct families. Aspen is one of the *Salicaceae* along with the poplars and willows, while birch and the alders belong to the family *Betulaceae*.

QUESTION: What species of trees are found in the Tongass National Forest in Alaska?—A. R. B., Pennsylvania.

ANSWER: Sixty per cent of the timber is western hemlock, about twenty per cent is Sitka spruce and the remainder is western red cedar, yellow cypress and small amounts of cottonwood, birch, lodgepole pine and white fir.

QUESTION: What makes wood porous?—A. R. B., Pennsylvania.

ANSWER: Pores, or hollow tubes, which are comparatively large cells set one above the other and vertically within the wood structure, cause the wood to be porous. Pores are characteristic of the so-called hardwoods, or the wood from broadleaf trees. Accordingly,

hardwoods are referred to as porous woods, while the wood from conifers is classed as non-porous.

QUESTION: Why do the leaves of white oak cling on so long in the spring?—F. L., Pennsylvania.

ANSWER: This is a characteristic common to most of the oaks and beeches. It is frequently more pronounced on the lower branches and on those branches not exposed to full light. Some plant physiologists have tried to explain it on the ground that oaks are naturally adapted to more southern conditions and that the leaf base is habitually surprised and killed by frost before the separation tissue is formed. This explanation is scarcely satisfactory because the same kind of tree transplanted to a frost-free climate will often continue to hold the dead foliage well into the spring.

QUESTION: Is the tame or cultivated chestnut subject to the blight that affects all other chestnuts?—F. L., Pennsylvania.

ANSWER: Practically all chestnuts are subject to the chestnut blight. The Department of Agriculture is searching for Asiatic chestnuts which are blight resistant but thus far has secured nothing suitable for general distribution.

QUESTION: What causes tree leaves to take on the brilliant colors of autumn?—S. H., New Jersey.

ANSWER: The popular conception that frost is responsible for the color changes is largely discounted, and it appears now to be a natural change that comes with maturity. Some botanists declare the coloring is due to the fact that the leaf ceases to make new chlorophyll because of waning vitality brought on by old age. The chlorophyll present fades rapidly away, permitting other colors to show, and encouraging new colors to form under the altered conditions. It is commonly observed that any cause which retards the vitality of the leaves brings on early coloration.

QUESTION: What is the best book on bird life in the United States? I would like to get a book that illustrates the various birds in natural color and also gives concise descriptions on habitat, habits, et cetera.—T. B. W. W., Tennessee.

ANSWER: No single book illustrates all birds of the United States in color, but with the help of Harry C. Oberholser, of the United States Biological Survey, the following suggestions are offered: Probably the nearest approach to this would be the three bird guides written by C. A. Reed, and published by Doubleday, Doran & Company, Garden City, Long Island, New York—"Land Birds of the Eastern United States," "Water Birds of the Eastern United States," and the "Western Bird

Guide." For the eastern United States there is Chapman's "Hand Book of Birds of Eastern North America," and for the western United States, Mrs. Florence M. Bailey's "Handbook of Birds of Western United States." Neither one of these has any great number of colored illustrations. The New York State Museum, Albany, New York, has a portfolio of one hundred plates illustrating in colors practically all of the birds that occur in New York State, and the Massachusetts Department of Agriculture, Boston, Massachusetts, has been recently authorized to publish and sell the colored plates used to illustrate "Birds of Massachusetts," by E. H. Forbush. A book by Willard A. Eliot, "The Birds of the Pacific Coast," has a number of colored plates.

#### Dr. Howard Honored

The Capper medal accompanied by a \$5,000 prize fund for distinguished service to American agriculture has been awarded to Dr. L. O. Howard, principal entomologist of the Bureau of Entomology, United States Department of Agriculture. This recognition was particularly for his work in fostering the introduction of harmless insects to destroy others. On July 1, Dr. Howard concluded nearly fifty-three years in the Government service, of which thirty-three years were spent as Chief of the Bureau of Entomology.

#### Massachusetts Upholds Rules on Billboards

Billboards and outdoor signs placed at or near curves, intersections, underpasses or bridges in sparsely settled or open regions tend to divert the attention of the drivers of vehicles and therefore interferes with the public safety, it has been asserted in the master's report in the so-called billboard cases, which has been filed with the Supreme Judicial Court of Massachusetts.

In thickly settled districts, however, the report held, signs and billboards rarely, if ever, tend seriously to distract the attention of drivers of vehicles from the business of driving safely, and therefore do not interfere with the public safety in such areas.

Pointing out that the Division of Highways made the factor of "scenic beauty" an element in determining when a permit should be refused, the master found that "beauty in the sense intended and employed in the framing and administration of the rules and regulations has, in fact, a real and substantial economic value to the Commonwealth, and to its citizens."

The rules and regulations in question provide, among other things, that no permits will be granted for billboards within 300 feet of any public park or reservation, if within the view of the same; no signs of any type may be erected within fifty feet of a public way, except in business districts; no billboards may be erected in excess of a length of fifty feet or a height of twelve feet, except in business districts; and that no permits will be granted along highways where in the opinion of the Division of Highways having regard to health, safety, danger of fire and unusual scenic beauty, billboards and signs would be particularly harmful to the public welfare.

#### Massachusetts Appoints Kenney Director of Fish and Game

Raymond J. Kenney has been appointed director of the Massachusetts Division of Fisheries and Game by Governor Ely. The appointment was effective as of July 1. Mr. Kenney succeeds William C. Adams, who resigned to accept the position of Chief of the New York State Division of Fish and Game, with headquarters at Albany.

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School of Forestry

New Haven, Conn., U. S. A.

## Book News



and



## Reviews

THE RAINBOW CANYONS, by Eivind T. Scoyen and Frank J. Taylor. Published by Stanford University Press; 105 Pages; illustrated. Price, \$2.

Eivind T. Scoyen, the first permanent superintendent of Zion and Bryce National Parks, and Frank J. Taylor, who has been closely associated with the National Parks for many years, bring to the attention of the American people the lure of southern Utah's prismatic canyon country with its glorious panorama of brilliantly tinted cliffs.

Herein the authors have weaved the historical account of the battleground of two of nature's greatest forces—"one powerful enough to raise up whole continents, the other strong enough to break them down." They describe the dominant, dazzling beauty of Zion, the delicate and detailed glory of Bryce, and the incomparable Grand Canyon itself.

Chapters are devoted to the natural history of the region and to the primitive plant and animal life of the surrounding plateau country. Here in the Rainbow Canyons is written the account of creation, and from its dim beginnings is traced the record of prehistoric man, the history of the American Indian, and the early days of the courageous Mormon pioneers.—D. H.

THE REAL LOG CABIN, by Chilson D. Aldrich. Published by the Macmillan Company, New York; 278 pages; illustrated. Price, \$2.50.

A new edition of this romantic and historic phase of the forests and outdoors, it is a book with universal appeal. The author is an architect devoting himself exclusively to designing and building log cabins, from those of the simplest type to those of elaborate and expensive design. He tells how practical log cabins are, what they cost and how to build them. The new edition is well done, and is something everybody with a desire for a log cabin should read carefully before taking the first step.—E. K.

Slash areas in northern Wisconsin occupying over 600,000 acres which have been accumulating at the rate of about 100,000 acres a year now represent probably the largest accumulation that will ever be found in the State. Raphael Zon and Russell N. Cunningham, of the Lake States Forest Experiment Station, present this conclusion in Research Bulletin 109, entitled "Logging Slash and Forest Protection," published cooperatively with the Agricultural Experiment Station of the University of Wisconsin at Madison.

Specifications and dimensions for northern white cedar, western red cedar, chestnut and southern pine poles are available from the American Standards Association, 29 West 39th Street, New York City. These are the result of investigations and conferences by representatives of the largest users of wood poles in company with Government and forest school wood specialists, under the sponsorship of the American Standards Association Telephone Group.

NOW WE'RE LOGGING! by Paul Hosmer. Published by the Metropolitan Press, Portland, Oregon; 210 pages. Price, \$2.

A collection of stories designed to prove the humor of the logging camp and the big timbers—and does. The author writes with authority and intimacy, and succeeds in spiking the slurs of senile critics that the lumberjack is devoid of humor. And his humor is not that for the parlor. This book is an eye-opener and very, very entertaining.—E. K.

FUNGUS DISEASES OF PLANTS, by Dr. Jakob Eriksson. Translated from the German by William Goodwin. Published by Charles C. Thomas, Baltimore, Maryland; 526 pages; illustrated. Price, \$10.

Descriptions, with illustrations and references, of the more important fungous diseases of northern and middle Europe occurring on field and garden crops and upon some of the trees of economic or ornamental value. The extent to which many of these diseases have been transported to North America make the book valuable to American students. Reference is made to American experiences, in the case of chestnut bark disease, white pine blister rust, which is referred to as currant felt rust, and others.—G. H. C.

Three-fifths of the area of the State of Michigan is insignificant as a producer of income. The low tax base per unit of area and per capita in this major portion of the state have resulted in a heavy tax burden on the individual property owners without adequate public service. This is one of the conclusions of P. A. Herbert as reported in a recent forest taxation inquiry entitled "Resources and Public Finances of Michigan in Relation to the Forest Tax Problem," available from the Forest Service of the United States Department of Agriculture at Washington, D. C.

THE PHYSICAL PROPERTIES OF THE SOIL, by Bernard A. Keen. Published by Longmans, Green and Company; 380 pages; illustrations and diagrams. Price, \$8.

Based upon his long experience at the Rothamsted Experimental Station in England, Dr. Keen presents a connected and critical survey of the present knowledge of the physical properties of soil.

Following an introduction which brings to date the history of the study and application of soil physics in which he refers liberally to the work of other soil physicists, the author discusses the distribution and movement of water in the soil, as well as the physical properties of soil under field conditions. The conclusions are largely the result of the experiences and data collected at Rothamsted. Several pages are devoted to a description of the Rothamsted dynamometer, an instrument devised to record the resistance of various types of soil against the progress of a plow or other cultivator.—G. H. C.

### Illinois Sets World Record in Quail Production

Illinois has established the world's best record in quail production, according to the Department of Conservation of that state. A new high mark was established by the production at the state's game farm of 223 live and vigorous baby quail from 246 eggs, a yield of 90.65 per cent. This exceeds by 1.65 per cent, he added, the best previous record, which was held by the White Oak Game Farm in Virginia.

### A Cure for Poison Ivy

A reliable cure for poison ivy, result of hundreds of experiments conducted by J. B. McNair, scientist, has been found, says the Isaac Walton League, and should be used in place of the home-made "sure-cure remedies."

First, infected parts should be washed thoroughly with strong soap and water. Laundry soap is better than a plain hand soap. The idea is to remove from the skin as much of the irritating oil of the poison ivy plant as possible. Soap and water will do very well, but washing the infected parts with ether or chloroform is recommended because the oil of poison ivy is easily soluble in these.

Next, apply a five per cent solution of ferric chloride which has been added to a fifty-fifty solution of water and alcohol. If you cannot get the alcohol use the diluted ferric chloride solution. Swab the infected parts thoroughly with cotton soaked in the chloride, and then apply compresses of the solution to the infected skin. Keep the pads moist and well bandaged. Renew the chloride solution at intervals. Ferric chloride or iron chloride can be purchased at most any drug store.

### Camp Lee Sought as Wild Fowl Refuge

Transfer of Camp Lee, in Virginia, to the Department of Agriculture as a bird refuge has been proposed to the Department by officials of Virginia, R. W. Dunlap, Assistant Secretary of Agriculture, stated.

Camp Lee is one of the Army posts to be abandoned under the government economy program, Mr. Dunlap explained, and under the plan of the state officials it would be operated cooperatively by the state and the Biological Survey particularly for the preservation of quail.

### Geologists to Study Glaciers in Alaska

Dr. Harry Fielding Reid, of Baltimore, Maryland, prominent scientist and former professor of dynamical geology at Johns Hopkins University, and C. W. Wright, Washington, D. C., assistant director of the United States Bureau of Mines, are at Jasper Park, Canada, before proceeding to the Pacific coast and the ice-covered region of Glacier Bay, Alaska. The two geologists form an expedition sent by the United States Geological Survey to make a study of the great ice fields of Glacier Bay and particularly of the famous Muir Glacier.

Dr. Reid mapped the Glacier Bay region in 1892, while Mr. Wright, and his brother F. E. Wright, studied the area for the Geological Survey in 1906. The two will now compare their previous findings in an effort to discover the rate at which the great glaciers are receding. According to Dr. Reid, glaciers the world over are rapidly receding and it is known that those in Glacier Bay have receded eight or ten miles since the latter part of the nineteenth century. He expects to find similar extreme changes in other glacial fields.

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DEPT. A-9

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Being Just-So Tale  
Number Five



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say a slighting thing about Jake, and he'd have all the rifle-ready moonshiners plumb after him.

And so it is that trees are folks to some and just trees to others. How too bad it is not more folks than trees. Which remark reminds me we have 300 acres of evergreens and deciduous stock. Might be that was said sort of by way of business intent.

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**AMERICAN FORESTRY  
ASSOCIATION**  
Washington, D. C.

## WEST VIRGINIA FORESTRY MEETING

Some clear thinking and plain talking about the West Virginia forestry situation resulted from the tenth annual field trip of the Alleghany Section, Society of American Foresters, held recently on a tour through West Virginia mountain and forest land, the three chief points touched being Elkins, Parsons and Petersburg.

West Virginia, it was revealed, is the only one of the six states represented by the Alleghany Section, others being Ohio, Pennsylvania, Virginia, Maryland, and New Jersey, not having a technical forester with technical assistants, dissociated from other organizations.

"It is time," declared Reginald D. Forbes, director of the Alleghany Forest Experiment Station, Philadelphia, chairman of the section, "that West Virginia gets a technical man and lets him work out a constructive program without political intervention."

This statement met with agreement on the part of State Forester Harold S. Newins, who said that "there are only two technical foresters in the State, and both of them are associated with other organizations." Mr. Newins' resignation as chief state forester with the West Virginia Game, Fish and Forestry Commission, at that time unannounced, was made two days later.

A further indication that West Virginia forestry is not meeting with sufficient interest

was made by Mr. Newins, toastmaster at a luncheon in Elkins, when he made the observation that "West Virginia has a forest and potential forest area of nine million acres, or more than sixty percent of the State, making it essentially a forestry state, yet it has but two technicians to administer this great asset."

Congressman Frank L. Bowman, of the second West Virginia district, who attended the field meeting, declared at the same session that "I am disappointed there are no more West Virginia governmental representatives at this meeting. It seems to me that this highly important program is not being given sufficient attention in the State."

President James E. Allen, of Davis and Elkins College, during the visit in Elkins, made the suggestion that a chair of forestry be set up at Davis-Elkins, situated as it is in the heart of one of the most productive forest regions in West Virginia.

Added study of forest fires caused by railroads, said to be the greatest single cause of such fires; continued research on the effect of the 1930 drought on forests; further keeping of long-time records of tree diseases and insect pests; and a continuance of the study of Scotch pine to see if it is practical for planting of barren lands of the Alleghany section, were other questions of technical import considered by the foresters on the tour.



Through excellent work in forestry, these six members of the National 4-H club were among the 156 representatives of the organization awarded a trip to Washington, D. C., in June. They are studying a young spruce tree in their camp on the grounds of the United States Department of Agriculture. They are, from left to right, John Arthur Tasker, Vermont; John B. Folsom, New Hampshire; Ralph Suggs, North Carolina; Arlow B. Wilson, Ohio; Miss Alice Lee, New Jersey, and David Campbell, New Hampshire.





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### Limit on Output Proposed to Aid Timber Industry

Recommendations for temporary limitation of lumber production to the minimum which exigencies of unemployment will permit, promotion of a demand for lumber for farm and small home building with means of deferred financing and moderation of imports that compete with domestic production were among the proposals to remedy conditions in the lumber industry made by the Lumber Survey Committee of the Timber Conservation Board to the Secretary of Commerce, Robert P. Lamont, and made public July 30. Mr. Lamont is chairman of the Timber Board.

The report, which contains an analysis of all available information concerning conditions in the industry, predicted that the withdrawals in the next six months would amount to only half of the 4,500,000,000 feet of excess stocks. It was found by the committee that the capital structure of the industry could not withstand too long a cessation or reduction in output so that the recommendation for limitation of production was placed at six months.

Request was made by the committee that the Timber Board undertake another study or survey of prospective demand and supply at the end of September and that the Bureau of the Census seek and assemble data by which it will be possible to segregate stocks and hardwoods and softwoods for the better guidance of the industry.

Recommendation also was made that consideration be given to the question of uniting sales facilities of companies into groups which in effect would be to combine inventories. This, it was stated, should make for greater financial stability and would produce economy and flexibility of production and distribution.

### Holliday New State Forester For West Virginia

J. W. K. Holliday, former professor at the Pennsylvania State Forest School, has been appointed state forester for West Virginia, succeeding H. S. Newins who, it is reported, has accepted an appointment in the forestry department of Michigan State College. Mr. Newins became state forester in 1929. At one time he was professor of wood utilization at the Pennsylvania State College.

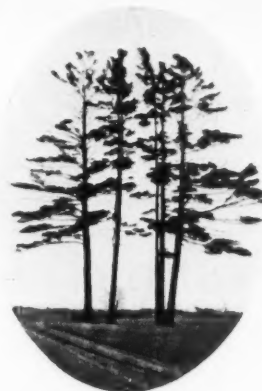
### New Kellogg Bird Sanctuary Established in California

George Hebdon Corsan, Sr., formerly of the W. K. Kellogg Bird Sanctuary at Wintergreen Lake, Michigan, is establishing a new sanctuary at the W. K. Kellogg Arabian Horse Ranch near Pomona, California.

The Kellogg Sanctuary at Wintergreen Lake was started in 1927 with the breeding of song and game birds and the control of predators. In this area visiting birds are found at all times of the year until today thousands of wild ducks, wild geese, and wild whistler swans stop at the sanctuary during their fall migration.

Thousands of evergreens, selected nut and fruit trees, bird food trees, and shrubs and vines have been planted on the hills and lowlands surrounding the lake during the past four years under the direction of Mr. Corsan.

The bird sanctuary was opened to the public when Mr. Kellogg noted that many people asked permission to see the birds. Now thousands visit the lake each year. Among the rare birds at the sanctuary are white royal swans—the swans of myth and fairy tale—Royal Polish swans, trumpeters, whistlers, whoopers, bewicks from Asia, black swans and blacknecks.



### My Pines

Doris Wheeler Blount

I call them mine! A stately group they stand  
Out in the meadow, just beyond my door.  
A living picture from a Master's hand!  
Each day they seem more lovely than before.  
I watch them brave the storm, dark heads held high,  
Again, their somber boughs are drooped with snow,  
I see them etched against a sunset sky,—  
Then richly outlined in the moon's soft glow,—  
And oft I hear their clustered needles hum  
A song that has outlived a century!  
For these old monarchs saw the white man come  
And clear the forest round them, tree by tree!  
And they will stand there, tall, majestic, fine,  
Long after I am gone,—but now, they're mine!

### Wisconsin's Historic Walnuts

Through its Extension Department, Wisconsin has provided nursery space in the McKay Nursery at Waterloo for the propagation of walnut seedlings to be used in the nation-wide nut tree planting campaign. The seeds are from historic Tridelpia, Maryland, and from Gettysburg.

### Newsprint Market Governs Timber Deal

Present conditions of the newsprint industry are expected to govern the negotiations for the sale of National Forest timber in Alaska for the development of a large pulp industry there, according to the United States Forest Service.

Officers of the American Paper and Pulp Association who in a letter to President Hoover urged him to hold pending negotiations for the sale of National Forest timber in Alaska for newsprint, need not fear that their interests will be jeopardized, was pointed out.

Conditional permits for the purchase of two important west coast groups of 10,000,000,000 board feet of pulp wood in the Tongass National Forest are involved in negotiations. It is expected that large water power projects near Ketchikan would furnish sufficient energy to produce between 200 and 500 tons of newsprint each day. There is sufficient timber to keep the plant running fifty years.

## FREMONT'S TREE OF THE DESERT

(Continued from page 535)

was raised to inform the surrounding country that a blow had been struck by the Indians."

Again in the Indian country: "At night we encamped in a fine grove of cottonwoods on the bank of the Elk Head River. We made here a strong corral and fort and formed the camp into vigilant guards." Here apparently the friendly trees furnished the little band with material for defense.

Occasionally there creeps into the narrative some warmth of grateful recognition of the service constantly rendered by the tree, thus, "We were delighted in finding an old cottonwood with wide-spreading branches under which camp was made."

The story of the Pathfinder's hazardous days is thus punctuated with notes on ever-changing campsites, some were cheerless, others were located in attractive green spots under the shade of trees. In one such happy camp he finds a cottonwood new to him: "The stream was prettily wooded with sweet cottonwoods, some of them of large size. This tree, which is now in fruit, is different than any in Michaux's sylvia." There is good reason for believing that this is his first meeting with the species which now bears his name.

Young Francis Parkman, just out of college and embarked on his adventures along the Oregon Trail, was not so tree conscious as Fremont. His interest was focused upon the Indians and all the motley humanity which thronged the trail. He loved the sunsets and was thrilled with the wild grandeur of the primeval landscape but it was in the study of his brothers, red and white, that his real absorption is manifested. His eye failed to see the landscape in detail. He felt none of the pleasure Fremont found in the observation of growing things. Of their nature or kind he apparently knew very little.

He does at times make note of the cottonwood nevertheless; always in its relation to water supply and camp life. On one occasion he writes of his concern over the prospect of a dry and cheerless camp on the open plain, then of anxiety relieved by the glimpse of a tree top peering over a distant swell in the prairie. Making all haste toward it they were presently encamped in a grove of trees which grew about pools of water.

Here is one description of many similar incidents: "We found ourselves at length on the edge of a steep descent, a narrow valley with long rank grass and scattered trees stretching before us for a mile or more along the course of the stream. Reaching the farther end, we stopped and encamped. A huge old cottonwood tree spread its branches horizontally over our tent."

The maps of the western country traversed by the trails bear testimony to the intimate place the cottonwoods served in the daily life of the early hunters and trappers and to the settlers who came later. Scan the surface of a fairly large scale map of any western state, and observe how widely used is the name "cottonwood" to characterize watercourses, springs and "washes." Study of a more localized map will further impress with the ubiquitous nature of this tree.

Those who were responsible for such lavish bestowal of this name paid unconscious tribute to the cottonwood. To them it was the obvious choice and reflects only the paucity of their imaginations.

In the extreme southwest "Alamo" vies with "cottonwood" for honors in nomenclature. Yet, the seeming rivalry is but evidence of a greater unanimity of mind, for the Spanish call their cottonwoods *Alamos*.

"Remember the Alamo" is an old war cry of the 40's. Seemingly it is this tree which lends its name to one of the most heroic battles

in American history. How strangely appropriate is the linking of this wilderness tree with the spot where those fearless mountain men died in true western fashion "with their boots on."

One may search through the journals of those days and find very little said of the nature of the tree. Occasionally it was "big," yet as often it was as dwarfed, storm torn and gnarled as the grizzled nomad whom it sheltered. It is truly a creature of its environment and when this is happily chosen it grows into a tree of noble proportions and dimensions.

Did it yield timber of value to the settler? Apparently not, for the pine and oak were preferred, though he did use its soft and brittle timber when others were not available. What of its beauty? No doubt it appeared in the eyes of the voyageur a glorious thing as it graciously received him into its shelter at dusk, after long desert miles of travel. Still, few in those days had any awareness of its beauty. At least the written records do not reflect any such recognition, although many must have followed it through the seasons and witnessed its striking transformations. Few trees respond to the cyclic life impulses of the seasons so generously as do the cottonwood.

As it stands in winter stripped of leaves, observe the vigorous thrust of its great branches, how intricately woven and etching-like are its twiggy outer branchlets which gleam almost white against the shadow on a canyon wall. How admirably self-reliant it appears in its chosen habitat.

In response to the first warm days of spring it drapes itself in a mantle of long catkins, delicately green, shot with bronze reds and the gold of pollen. There is a certain joyousness in its flowering effort, a burgeoning abundance of life that is impressive. A few weeks later this brave show has given way to a green mist of young foliage. No bride was ever adorned with such a soft and shimmering robe.

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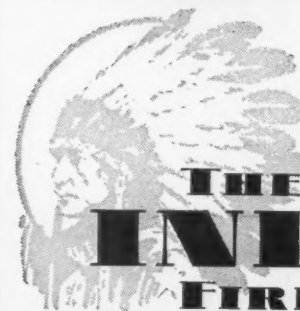
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green of its foliage is in striking contrast with the tawny summer landscape of the West.

Crowning glory of the year, it may be found in some hot and sheltered desert canyon, its favorite haunt. The early frosts of autumn have transmuted its leaves into shining gold; if for background there stands a mountain in blue shadow, then one has looked upon a landscape unrivaled in all the western country.

The tree derives its name "cottonwood" appropriately enough from the manner of its highly successful seed dispersal. The flower catkins on the fertile tree rapidly develop into pendant racemes of globular green pods. When ripe, these pods burst, releasing the tiny seeds, each enmeshed in a cottonlike cluster of hairs, infinitely light and serving as sails. In season the airways in the vicinity of cottonwoods are filled with these swirling little ships of destiny. They seem imbued with a volition of their own, darting about in the air currents and glinting in the sun like tiny white moths. The wide distribution of cottonwoods in the West was due to this happy enlistment of the air in its scheme for reproduction of its kind.

The glamorous old days are gone and with them the throng of westward-marching Argonauts. Many of the old trees which stood to these men as hosts along the trail have long since bowed before the ax and saw for fenceposts and beams for cabins. Civilization has wrought upon the wilderness its relentless will. Shorn of much of its wild beauty, it stands tamed and harnessed by the descendants of the pioneers.

There are still remnants of the Old West almost untouched by man and there are still wilderness-loving men who haunt these places. The prospectors are the present-day inheritors of the old traditions. They eagerly explore the remotest corners of this shrunken empire that was.

They will tell you strange stories of lost mines. Outwardly, it may appear that the quest for gold binds them to a hard and lonely life. The real cause lies deeper, it wells from a spring in man's nature which drives him forth to search the unknown, to court adventure, to be free. Today these searchers for gold along the borders of the desert ranges partake of the hospitality of patriarch cottonwoods which knew those kindred spirits of

nearly a century ago. Of the old trails only a trace may be seen here and there.

Descendants of the emigrants journey along broad and smooth highways, motoring in a day distances which their fathers covered only after weary weeks of toil and hardship. How many of the present generation, speeding so luxuriously east or west, recognize in the old cottonwoods they pass trees which perchance sheltered their fathers and nourished forgotten campfires? For these old trees have witnessed a hundred years of swiftly moving history.

## LIGHTNING ON THE LOOKOUTS

(Continued from page 518)

bed, the wooden "springs" broken squarely in the middle. All of the windows were broken, and the rain following the lightning storm was beating in from two sides of the cabin. All of the lids on the little cook stove were awry, and the lost stool was over there jammed between the stove and the wall. Cans of food that had been neatly arranged on the shelves were scattered over the floor, many of them mashed as if struck by a maul. The front of the telephone had been blown open and the wall above it was almost completely torn away. There was some kind of a fire glowing outside the door. Fred stepped over to look, and found his woodpile dying down to a mass of coals not fifteen feet from the cabin.

No one knows just what Fred did then, when he realized that he had been knocked out by lightning which very nearly finished the job by cremation. But when he reached the trail camp six miles down the mountain, at about four o'clock in the morning, he was a strange appearing lookout, according to the trail crew men who quickly rolled out of bed to hear his story. Apparently, before he left the station Fred had put on his shoes, shirt, cruising shirt and hat, but when he reached the trail camp he was still carrying his pants in his hand. Not a mark on his body indicated that the lightning had struck him directly, but a decided soreness from his knees to his shoulders showed that the force that broke his bed may have acted through him and thence on the bed slats.

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Although the trail men urged Fred to stay at their camp while they climbed the mountain to extinguish the fires started by this storm, Fred went with them to the first fire, and then on to the lookout station to scan the country for more telltale smokes. When some of the trail crew arrived at his cabin Fred had just located his pipe under the foot of the bed, while the cocoa can ash tray was finally discovered balanced on one of the rafters overhead. Several hundred feet of telephone wire leading to the cabin had been melted and "spattered like sour dough batter on the rocks," as the ranger's report described it.

To some men life on a lookout station becomes an almost unbearable nervous tension. To others it is a pleasant summer job with new experiences and excitement. It is a try-out, whether or not they realize it, for the lookouts are the eyes of the forest protective system and their work is extremely important.

## THE BLACK BOG OF PENTWATER

(Continued from page 525)

whichever side of a tree it pleased. If one could believe this woodsman's tell-tale guide, all directions were north.

I struck off blindly in the direction from which the galloping hoof-beats had come. But how could I know whether or not I was going in a straight line? I trampled through magnificent fern beds, I pushed through thorny brambles, I climbed over fallen trees in an effort to keep a true course, but all the while I felt the futility of it. The chances were I was going round and round in circles of every description.

Ever since boyhood I had prided myself on being able to find my way about in any kind of a forest. It is true I had been lost, but always a certain measure of confidence stayed with me. Never till now had I felt so utterly helpless, so thoroughly bewildered, so completely turned around. Panic reached out and engulfed me—the panic that must come to those who fear the wilderness. I tramped recklessly onward. What if I should drown in some ebon pit? What if I should step on a rattlesnake?

For several hours I wandered on. My progress was slow and painful. Fearfully I crossed unstable mats of semifloating vegetation. If I slipped through to the stagnant water beneath, there would have been no coming up for air. Pits of black water appeared before me and on both sides. Thrice I glimpsed a great expanse of open water and turned away from it, for I knew that near its edge the floating mat would hardly bear my weight.

Those hours were hours of torture. Maybe I was only a few rods from that barbed wire, maybe I was miles away. I seemed to be always drawn toward the deadly center of the place by some unearthly magnetism. I was held captive by the black bog of Pentwater!

It was growing late and I was very tired when the clouds in the heavens above thinned out a bit and behind them faintly, very faintly, I could at last see the disc of the sun. I followed it, for I knew that it would lead me toward the west.

On my way back to camp I passed the cabin of the hermit of Grouse Hollow. The old man looked up from his frying pan as I paused in the doorway.

"Wal," he said, "I see y've been lost in the black bog."

"How in the world did you know that?"

"I kin tell by the look on yer face," he replied. "They all have that same expression if they ever git outta thar. Only you sure have got it good and plenty."

## Game and Fish on Crop Basis is National Forest Aim

A continuous yield of fish and game with replenishment each season like the repetition of crops of the field, is the idea of the United States Forest Service for the woods and streams in the National Forests, according to the Chief Forester, R. Y. Stuart. Declaring that the total production of fish and wild life of the country is inadequate to meet the ever-increasing demand for outdoor recreation, Major Stuart sets forth the aims of the Forest Service in developing recreational opportunities.

"All National Forest land must be devoted to its most productive use for the permanent good of the whole people," he says. "That means a continuous yield of each crop the land or water is capable of producing. The Forest Service is applying this principle by harvesting the timber and forage crops on a sustained-yield basis. The same principle must apply to wild life."

The National Forest program is fitting itself into public plans and the Forest Service is ready to cooperate in any sound national game program, Major Stuart says.

"The continuous yield of fish and game as a practical working principle is gaining ground," he states. "That certain species are almost extinct on some areas, that there is a satisfactory breeding stock with inadequate increase on other areas, while still other areas are overpopulated, clearly indicates the need of applying the principle on National Forests. All land and water is capable of producing some species of fish or game or fowl or fur-bearing animals or a combination of them, beneficial to mankind."

In reference to game refuges and stocked streams, he says, it is immaterial whether state or federal agencies take the responsibilities for their regulation and productivity, so long as such areas are administered effectively. A total of 267 state game refuges, including more than 20,000,000 acres, have been established on National Forest land. These areas are administered jointly by the states and the Forest Service. In a few cases refuges have already developed an overpopulation of wild game. Only by hatching and releasing many millions of fish of the proper size can the management agencies give every man his chance for a good catch.



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## "WHO'S WHO" AMONG OUR AUTHORS

WALLACE W. ATWOOD (*What Are National Parks?*) is President of Clarke University and President of the National Parks Association. Noted as a geographer and geologist, he was Assistant Geologist of the United States Geological Survey in 1897. From 1913 to 1920 he served as Professor of Physiography at Harvard University, assuming the Presidency of Clarke University in 1920. He is the author of numerous books and articles on geological and geographical subjects.



Wallace W. Atwood

WALLACE J. HUTCHINSON (*By Horseback to the Top of America*) is one of the "old-timers" of the Forest Service, having entered as a student assistant in 1901. A graduate of the Yale Forest School in 1903, he saw the pioneering work of the Forest Service in the Middle West, Far West and the Philippines. In 1922 he became Assistant District Forester in charge of Public Relations in the California District with headquarters at San Francisco, which position he now holds.

H. T. GISBORNE (*Lightning on the Lookouts*) is with the Northern Rocky Mountain Experiment Station. His first lookout job was in 1915. In 1917, after receiving a degree of B.S. from the University of Michigan, he was appointed field assistant and in 1919 joined forces with the Tenth Engineers and served throughout the World War. After the war he was appointed to the Wind River Experiment Station and later became Technical Assistant on the Whitman National Forest, in Oregon. His chief investigations have been those of fire, weather, lightning, forest fire causes and moisture content of forest fuel.

RALPH MOCINE (*Freemont's Trees of the Desert*), writer and lover of the mountains, says he was "born in the center of the world's greatest forest in Oregon" and that this accounts for his interest in trees, mountains and the outdoors. Several years of his life have been given to studying art at "Julien's" in Paris and traveling in Italy, Spain and France and painting landscapes in Holland.



Ralph Mocine

WILLIAM B. GREELEY (*The Northwest Lumber Crisis*) is Secretary-Manager of the West Coast Lumberman's Association, and former Chief of the United States Forest Service, resigning in 1928. With the rank of colonel he served as chief of the forestry section of the A. E. F., and had charge of the recruiting of forestry troops. He entered the Forest Service in 1904 in California, his native state.

BEN H. THOMPSON (*A Pond at Dusk*) was associated with George M. Wright and Joseph S. Dixon, in a survey of wild-life problems in the National Parks. He is a native of Ohio but has spent most of his time in Arizona. He was graduated from Stanford University and subsequently studied forestry and zoology at the University of California.

JAMES HOWARD SEDGWICK (*The Black Bog of Pentwater*) is a writer and photographer of Springfield, Massachusetts.

JAMES HAY, JR. (*The Smartest Thing My Dog Ever Did*) continues in this issue his stories of clever dogs belonging to some of America's best known men and women. Mr. Hay is a well known writer and newspaper man. Among his many associations in that field he traveled with President Taft from his nomination until 1910. Since then he has devoted his time to free-lance writing.

CHARLES E. RANDALL (*Radio and Forest Fire*), Chief of Press Relations of the United States Forest Service at Washington, D. C., received the degree of A. B. at Stanford University, in California, and has taught botany at the Oregon University of Agriculture. In newspaper work he was associated with the *United States Daily* and the General Press Association. In 1927 he assumed charge of the Department of Press Relations at the Forest Service.



Charles E. Randall

JOHN F. PRESTON (*The Balky Pack Horse*) was formerly with the United States Forest Service in the Pacific Northwest, serving as Assistant District Forester. Transferred to Washington, D. C., he held the position of Assistant Chief of Forest Management.

PAUL M. FINK (*A Forest Enigma*) is a native of the mountains of east Tennessee. He writes, "my chief hobby is the mountains and all that pertains thereto—history, botany, geology and the various other phases of nature study. My confident belief is that the southern mountains, and the Great Smokies in particular, have in their varied charms few equals and no superiors."

ROBERT S. WALKER (*The Fountain Tree*) is an author and student who has written limitlessly in the fields of nature. He makes his home in Chattanooga, Tennessee.

MARY C. H. KELLEY (*A Down East Trout Farmer*) makes her home in Alfred, Maine.

WAKELIN MCNEEL (*A Forest Page for Boys and Girls*) continues his interesting series.

FRED H. KISER (*Through the Lens*), Californian, photographer and seeker of beauty, continues his interesting series.

RAY GWYNN HOGAN (*Rainbow Rendezvous*), writer, might be called a native of Mexico for he has lived there since the age of five. He claims to be a firm believer in the conservation of the forests and streams and says when he is not writing he may be found on his favorite lake or stream, hunting or fishing.



Ray G. Hogan



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F. W. BESLEY, 1935—Maryland  
State Forester of Maryland  
W. R. BROWN, 1934—New Hampshire  
Chairman, New Hampshire Forestry Commission  
C. ARTHUR BRUCE, 1935—Tennessee  
Director, Hardwood Manufacturer's Institute  
HENRY SOLON GRAVES, 1932—Connecticut  
Dean of Yale Forest School  
WILLIAM B. GREELEY, 1933—Washington  
West Coast Lumbermen's Association  
W. B. GREELEY, 1931—New York  
Camp Fire Club of America  
A. S. HOUGHTON, 1934—New York  
New York State Reforestation Commission  
JOHN C. MERRIAM, 1931—District of Columbia  
President, Carnegie Institution of Washington  
JOY MORTON, 1933—Illinois  
Founder, Morton Arboretum  
GEORGE H. MYERS, 1934—Washington, D. C.  
GEORGE W. Sisson, Jr., 1935—New York  
American Paper and Pulp Association  
LOUIS J. TABER, 1933—Ohio  
Master, National Grange  
W. D. TYLER, 1932—Virginia  
Southern Forestry Congress  
WILLIAM P. WHARTON, 1932—Massachusetts  
National Association of Audubon Societies

## What the Association Is Working For

ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in cooperation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states, and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNITY FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA and FAUNA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

Member A. B. C.

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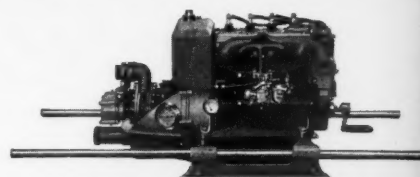
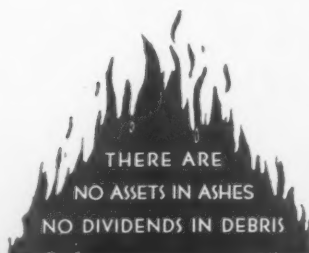


# PACIFIC PUMPERS

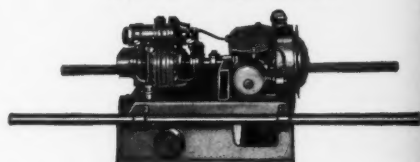


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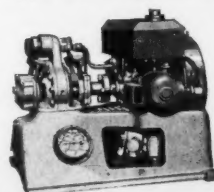
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